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ABSTRACT

This document reviews the interventions, such as policies, programs, and projects, that have been implemented by governments, donors, and other institutions to increase girls' access, persistence, and achievement at the primary school level. It examines both the formal system of primary education and nontraditional, alternative approaches to reach out-of-school girls. Its goal is to identify the strategies, practices, inputs, and factors that have had measurable impact in improving the availability and accessibility of basic education to girls in developing countries. The monograph employs an analytic model that categorizes interventions according to whether they address supply side (school factors) or demand side (household factors) barriers to girls' educational participation. On the supply side, few national policies are aimed at promoting girls' education. Educational expansion has limited effectiveness. At the program level, efforts are aimed at bringing schools closer to girls, making schools culturally appropriate, and helping girls learn. Textbooks, female teachers, and single sex schools may improve participation. On the demand side, interventions have attempted to lower the costs to parents of daughters' education and convince them of its benefits. Nontraditional approaches have succeeded in reaching girls prevented from attending school because of poverty and isolation. This paper concludes that, in addition to making school places available, schooling must be made accessible to girls. Multidimensional approaches to girls' education that take into account local context and both supply and demand factors have proven most successful. Selection of interventions should follow a logical process of development, based on needs assessment, monitoring, and evaluation. (DK)

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EDUCATING GIRLS: STRATEGIES TO INCREASE ACCESS, PERSISTENCE, AND ACHIEVEMENT

ABEL Research Study

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Advancing Basic Education and Literacy
(ABEL) Project

U.S. Agency for International Development
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Office of Women in Development
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Educating Girls: Strategies to Increase Access, Persistence, and Achievement

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1991

ADVANCING BASIC EDUCATION AND LITERACY (ABEL)

Sponsored by the Bureau of Science & Technology/Office of Education of The United States Agency for International Development (USAID), Project ABEL assists USAID missions and host-country governments in using proven educational tools, methods, and approaches to design and implement basic education programs. ABEL is managed by the Academy for Educational Development (AED) in cooperation with a consortium of Creative Associates International, Inc. (CAII), the Harvard Institute for International Development (HIID), and the Research Triangle Institute (RTI). ABEL is USAID's primary mechanism for assisting host-country governments and USAID missions in creating new initiatives to improve the quality and efficiency of basic education. The project draws on tools, methods, training techniques, and research findings from USAID and other donors during the past three decades and adapts these materials to country-specific conditions.

SUMMARY

Throughout the developing world, girls' educational participation trails that of boys'. Yet, if girls are not educated, society will lose the economic and social benefits associated with female literacy and schooling. This monograph reviews the interventions--policies, programs, and projects--that have been implemented by governments, donors, and other institutions to increase girls' access, persistence, and achievement at the primary school level. It examines both the formal system of primary education and nontraditional, alternative approaches to reach out-of-school girls. Its goal is to identify the strategies, practices, inputs, and factors that have had measurable impact in improving the availability and accessibility of basic education to girls in developing countries. The monograph employs an analytic model that categorizes interventions according to whether they address supply-side (school factors) or demand side (household factors) barriers to girls' educational participation.

On the supply side, few national policies are aimed at promoting girls' education. Overall, educational expansion has limited effectiveness in increasing girls' educational participation. In addition, policies such as "open" admissions, pregnancy policies, and investment in higher levels of education often have deleterious effects on girls' educational participation. At the program level, efforts are aimed at bringing schools closer to girls, making schools culturally appropriate, and helping girls learn. Carefully designed multigrade and programmed learning strategies have had positive effects. Single-sex schools can increase girls' enrollment and persistence, as well as their performance and self-esteem. Female teachers may improve girls' educational participation, but evaluation results are inconclusive. Within the classroom, textbooks have been linked to increased girls' enrollment and attainment, and condensed and culturally appropriate curricula have benefited girls.

On the demand side, interventions have attempted to lower the costs to parents of daughters' education and convince them of its benefits. Free primary education has brought many girls to school, but often hidden direct and opportunity costs prevent girls from participating. Scholarships have proven effective in improving girls' education. Other incentives and subsidies--school meals, free school uniforms, and labor-saving technologies--have generally failed. Child care facilities and preschools, which relieve girls of sibling care, are promising but underdocumented. Community and parental education through information campaigns and community participation have yielded positive results.

Nontraditional approaches have succeeded in reaching girls prevented from attending school because of poverty and isolation. Successful programs combine convenient scheduling and location, appropriate pedagogy and quality materials, condensed curricula, and the opportunity to matriculate into the formal system. Most importantly, they are free of charge with no hidden costs. However, questions concerning expansion and replication remain unanswered.

The monograph concludes that, in addition to making school places available, schooling must be made accessible to girls. Multidimensional approaches to girls' education that take into account local context and both supply and demand factors have proven most successful. Innovative, nontraditional approaches could be adapted to the formal system or replicated. If efforts to improve girls' education are to succeed, they must be integrated into national educational development plans and provided with adequate financial and administrative suppport. Selection of interventions should follow a logical process of development, based on needs assessment, monitoring, and evaluation. Current evaluations of interventions are inadequate. School quality appears to affect girls' achievement, as well as enrollment and persistence. Future research should define the average student as a girl, with the attendant barriers to educational participation, as well as disaggregate data by gender.

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Acknowledgements

This document is a review of interventions that have been implemented by governments, donors, and other institutions to increase girls' access, persistence, and achievement in primary education in the developing world. It is one of a series of "building blocks" in the Agency for International Development's (A.I.D.'s) efforts to understand the benefits of, and the impediments and solutions to, girls' educational participation in the Third World.

The review was prepared as part of Creative Associates International, Inc.'s work under the Advancing Basic Education and Literacy (ABEL) Project. ABEL, A.I.D.'s primary mechanism for assisting governments and USAID missions worldwide in the design and implementation of basic education programs, was sponsored by the Agency's Bureau of Research and Development through its Offices of Education and Women in Development.

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May Rihani
Vice President
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CHAPTER I

Introduction

A. Background and Purpose

If "education for all" is the rallying cry of educators in the 1990s, then in no learner group is the challenge of attaining this goal greater than in the case of girls.

Few researchers in comparative education have failed to observe that, despite the unprecedented expansion of the formal education systems and exponential growth in enrollments throughout the Third World, the educational participation of girls notably trails that of boys. Gender continues to play a major role in determining who goes to school, how well they do, and how far they progress. Being female is negatively associated with enrollment, attainment, and performance in the educational system.

Girls do not enjoy the same levels of schooling nor the same academic success. In general, the primary school enrollment ratio for girls trails the boys' ratio by at least 10 percentage points in 66 countries (Patel 1989), their attrition/wastage rate is greater, fewer complete the school cycles, and few enter the more remunerative--and perhaps productive--fields of study, such as science and mathematics. Even in those few low-income countries where primary education is universal, girls remain in school for shorter periods of time, rarely receive the same education, and enter fields of study that are predominantly female (Kelly 1987).

Conventional measures of educational efficiency--access, persistence, and achievement[1]--vary considerably for girls among developing countries and will differ in individual severity within countries. For example, in Pakistan few girls gain admission to the formal system, whereas in Botswana more girls than boys fill classrooms at the primary level (Chernichovsky 1985; USAID 1991). In Nepal, girls leave school early to assume child care responsibilities and assist in household production (Shrestha et al. 1986; Jamison and Lockheed 1987), while in Nicaragua boys' schooling is sacrificed to employment opportunities (Bustillo 1989). In Haiti, although gender parity is nearly achieved in private primary school enrollment, girls' test scores are lower than boys'(FSU 1991); yet in the Middle East those girls who persist within the educational system compete favorably with boys (El-Sanabary 1989).

But in no low-income country do girls exceed boys in all three measures of educational participation. The message is clear: girls are undereducated (Deblé 1980).

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[1]For the purposes of this paper, educational participation encompasses three measures: access, persistence, and achievement, which are used synonymously with enrollment, attainment, and performance, respectively.

Since the seminal works of Bowman and Anderson (1980), Smock (1981), and Kelly and Elliott (1982) on female education in the early 1980s, several studies have compared gender-differentiated educational efficiency indicators and identified the barriers to and determinants of girls' educational participation. More recently, research presents compelling economic justification for increased investment in girls' education, demonstrating high social and private rates of return and linking female primary education to GNP growth, increased productivity and labor force participation, decreased fertility and infant mortality, and increased child health (Cochrane, O'Hara, and Leslie 1980; Chamie 1983; Psacharopoulos 1985; Blumberg 1989; Floro and Wolf 1990; King 1990).

Yet the fact remains--despite the flurry of special programs and pilot projects that accompanied the U.N. Decade for Women--that educational resources are disproportionately allocated to men. Women in South and West Asia and North and SubSaharan Africa receive between one-half and three-quarters of the schooling men do (Schultz 1989b). Most studies on girls' education still conclude with a list of *theoretical* recommendations for action to improve female educational participation, reflecting the dearth of implemented interventions and lack of information on what actually has been tried and with what results.

This document will review the interventions--policies, programs, and projects--that have been implemented by governments, donors, and other institutions to increase girls' access, persistence, and achievement in primary school-level education, through both the formal system and alternative, nontraditional approaches. The goal is to identify those strategies, practices, inputs, and factors that have had measurable positive impact on girls' acquisition of basic education in developing countries and to identify the contextual factors or conditions under which these approaches are effective. It addresses four main questions:

- What educational interventions exist to improve girls' educational participation?
- In which contexts and under what conditions are these interventions effective?
- Which interventions and options appear most promising to improve girls' educational participation?
- What are the policy implications of these options?

B. Methodology

The data for this monograph were obtained through an extensive literature review, targeting both conventional sources of information and more fugitive literature, particularly from developing countries and groups that have direct experience with girls' education. Initial literature searches were followed by more precise inquiries of organizations and individuals. Information was collected through the following methods:

- a search of a variety of specialized databases, including REDUC, SHARE, and AID's Center for Development Information and Evaluation database;

- a review of a wide variety of extant bibliographies on girls' education in developing countries;

- an explanation of works held by specific libraries, such as The World Bank, USAID's Women in Development Office, the International Development Research Center, and the International Women's Tribune Center;

- direct contacts with a number of organizations known to be active in the area of girls' education or women's training, including UNICEF; UNESCO; AFS; WOW; Office of Women in International Development and Nonformal Education Information Center at Michigan State University; World Education, Inc.; International Center for Research on Women; the Canadian International Development Agency; and Creative Associates International (a complete list of organizations contacted is provided in Appendix B);

- direct contacts with a number of researchers in this area for their suggestions about relevant materials and organizations; and

- a review of papers from conferences on basic education for girls and women.

While a great deal of material was amassed with this strategy, it must be acknowledged that obtaining material generated in the field by developing country researchers and personnel proved elusive. If we were aware of a project or intervention that had not been documented or for which insufficient information was available, we attempted to contact individuals or organizations associated with the activity.

Through iterative discussions with the A.I.D. officers at R&D/WID and R&D/Ed and with staff at Creative Associates International, Inc., focused criteria and a detailed outline evolved. As work progressed, the researcher shared preliminary drafts with the review committee. The final report is a result of a revision process that incorporates additional material, comments and suggestions of the committee.

C. Organization of Report

This review comprises six chapters. The remainder of Chapter I discusses the definitions, parameters, and assessment criteria used for the treatment of girls' education and presents an analytic model for organizing and classifying interventions.

Chapters II, III, IV, and V present strategies and interventions aimed at improving girls' educational participation in the formal system and through nontraditional approaches outside the formal system. In Chapter II, supply-side approaches to girls' education--both at the policy and program levels--are examined. From a policy perspective, the discussion addresses

the impact of universal primary education and educational expansion, and identifies educational policies that have particularly affected girls. From a program perspective, interventions aimed at expanding girls' educational opportunities, making schools culturally acceptable to girls' parents, and providing effective learning environments are reviewed. Chapter III presents demand side approaches to girls' education. At the policy level, free education and fee-based schooling policies are examined. At the program level, incentives and subsidies to reduce the direct cost of schooling, efforts to reduce the opportunity costs, and attempts to raise appreciation of girls' education are presented. Chapter IV, which focuses on nontraditional alternatives for girls' education, departs from the supply-demand paradigm used for the formal system analysis. Effective nontraditional approaches successfully combine both supply-side and demand-side factors and do not lend themselves to disaggregation. Therefore, this fourth chapter presents examples of promising approaches that are being implemented in various developing countries. It also includes a summary of ingredients for successful nontraditional programs.

Chapter V presents a brief summary of the supply-side, demand-side, and nontraditional approaches. Chapter VI presents conclusions and discusses the policy implications of these recommendations. The appendices contain an outcome summary of major interventions in the formal system that affect girls, a bibliography of references used for background and research purposes, and a list of organizations contacted.

D. The Approach: Definitions, Parameters, and Criteria

What do we mean by girls' education? Chronological age cannot serve as a strict definition of "girlhood." In most developing countries, overage children fill school places, particularly at the primary levels. It is not unusual to find children of 14 or 15 years of age enrolled in the early primary grades. Incongruency of prescribed and actual age, indicating retarded progression through the school cycle, may be particularly problematic for girls, who are often enrolled at a later age and withdrawn periodically to work at home (Chamie 1983; Caldwell, Reddy, and Caldwell 1985; Lockheed and Verspoor 1990). The distinction between girl- and womanhood is further blurred in the early teenage years, as in some countries 13-15 year old girls assume the economic, social, and reproductive roles of women. For the purposes of this study, the definition of "girl" derives more from a young female's participation in formalized primary education than from rigid age limitations. In general, we address the 6-14 year age group of unmarried females, who have not yet assumed adult roles in society.

What then is primary education? Skills acquired in primary school--basic literacy and numeracy--are most often associated with key development gains. This chapter, therefore, focusses on strategies that are most likely to increase the availability and accessibility of basic education to girls, inclusive of grades 1 through 9.[2] Most girls' first experience with literacy and numeracy instruction is through the formal system of education: schools managed and

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[2] It should be noted that "basic education" has come to mean many things beyond literacy and numeracy, particularly for adult learners in the nonformal sector. For an expanded definition, see Stromquist 1986.

primarily--although not always--financed through the public sector. In brief, the formal education system is defined as structured programs of institutional learning, characterized by schools comprising a rigid age and grade system, government trained and/or certified teachers, prescribed academic national curricula, and a uniform standard of examination and progression.

However, as governments experiment with alternative and more appropriate means of delivering basic education services to hard-to-reach children (including and most often girls), the distinction between formal and nonformal education becomes less clear. Diverse formulae exist for transmitting primary school competencies that include in various combinations some of the attributes of the formal system. For example, the government may provide for the after-hours use of the schoolhouse to conduct classes for out-of-school children based on a modified primary school curriculum and taught by a noncredentialed teacher. Alternatively, a nongovernmental organization may establish schools to teach reading, arithmetic, and life skills to the same group of children. Rather than belaboring the distinction between formal and nonformal systems, we have chosen to approach girls' education by examining both the traditional schools of the formal system and alternative, nontraditional programs developed by public and private sectors alike in order to explore and provide a wide variety of options and approaches from different perspectives[3].

How do we define interventions? The growing awareness of the importance of educating girls--and the rhetoric arising from it--obscures the fact that, in actuality, relatively few educational interventions aimed exclusively at increasing girls' educational participation have been implemented. In the effort to identify various strategies or "best practices" associated with improved educational outcomes for girls, we have conducted our analysis at several levels.

First, we have examined policies and programs that focus specifically on girls, as well as "gender neutral" approaches that have had noticeably positive or adverse effects on girls' access, achievement, or attainment whether intended or not. Cases of positive deviance have been included to broaden the analysis. For example, why has educational expansion disproportionately increased girls' enrollment in one country and not in another? Second, research on school structure and organization, classroom practices, and resources, while perhaps not intentionally prescriptive or proactive programs, identifies factors that influence girls' participation and achievement, and point to interventions and policies that make a difference. For example, single-sex schools, textbooks, or a whole language approach to literacy seem to have notably positive effects on girls' participation, performance, and persistence.

Similarly, we have reviewed studies that point to ascriptive characteristics that correlate with

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[3]Only brief discussions of nontraditional approaches to primary education are presented in this document. Case studies of two programs--the Escuela Nueva Program in Colombia and the BRAC Program in Bangladesh--will be presented in upcoming A.I.D. publications.

increased likelihood of girls' educational participation. Some--such as rural or urban residence, family income, and national wealth--are beyond the immediate reach of the educational sector. Others--such as levels of parental education or attitudes towards women--suggest areas for action. Throughout, however, we have limited our focus to policies, practices, or resources that have been tried in developing countries, and avoid discussion of potential or theoretical interventions.

How are interventions assessed? Three main criteria or dependent variables were used to assess the impact of educational interventions on girls' participation in education: access (or enrollment), attainment (or persistence), and achievement (or performance). All are essentially indicators of internal efficiency; indicators of external efficiency (e.g., income stream, job status, labor force participation) are generally calculated according to level of schooling, not according to specific intervention, making it difficult in most instances to measure the impact on external efficiency. One measure of achievement, however, hints at the issue of external efficiency: attitudes and aspirations of girls toward additional schooling, social roles, and labor force participation, which may be indicative of future economic behavior. Additional indicators of impact or perceived utility are also used where available, such as delayed marriage age or greater marriageability. It should also be noted that a single intervention may have multiple effects or outcomes. Single-sex schooling is an example: it has been found in some situations that all-girl schools increase enrollments, prolong persistence, and raise performance.

In some cases, the causal relationship between the intervention and impact on girls' educational participation is unclear, and evaluation focusses more on effectiveness in realizing the short-term objective. For example, while the presence of female teachers in the classroom is generally accepted as beneficial, several methods to increase their ranks have been tried with varying success. The efficiency of the method in augmenting the number of female teachers has been evaluated, rather than its impact on the girls themselves. Finally, effectiveness of approach can hardly be evaluated without examination of issues of affordability and sustainability. Unfortunately, few cost data were available to the researcher. Nonetheless, economic considerations are noted where appropriate.

Not all of the studies reviewed are the result of systematic research and rigorous application of either qualitative or quantitative methodologies. Seldom were the data derived under controlled or quasi-experimental conditions, or through methodical observation based on a structured qualitative evaluation design. Indeed, in the majority of cases, evaluative data are anecdotal or impressionistic, and often included casually in a project description or occasionally mentioned in verbal conversations. Few studies employed sophisticated methods of participant observation or ethnographic research (Biraimah 1984 and 1987 are notable exceptions). Further, most quantitative analyses are of a first-order correlation type: assessment of the effect of the independent variable is performed on an additive or bi-variate basis. That is, a single input or intervention was tried and its impact assessed. Only a few

studies examined (e.g., King and Bellew 1989, Abraha et al. 1991)[4] employed a "production function" approach, comparing the individual effect of different educational interventions. Thus, lacking both quantitative and qualitative data, as well as cost data and weighted measures, our conclusions should be regarded with some caution.

E. Supply and Demand Factors: An Analytic Model

Why are girls undereducated? Why is there continuing underinvestment in girls' education? The answers are many, and the research on determinants of girls' educational participation forms the organizing framework for this review of intervention strategies, i.e., we must first identify the problems before we can address the solutions.

In general, the reasons divide into three groups: macrolevel societal factors; education system and school factors; and social and household factors.[5]

Macrolevel societal determinants include national wealth, degree of industrialization, level of development, degree of urbanization, religion, etc. Opinions differ as to which of these characteristics is most influential. Robertson (1984) contends that urbanization outweighs GNP; Bowman and Anderson (1980) point to the interactive effect of the "distinctive Muslim pattern of exclusion of women from opportunities for schooling" with poverty, vigorously denied by other researchers (Youssef 1976-1977; O'Shaughnessy 1978; El-Sanabary 1989; Kudat and Abadzi 1989); Ramirez and Weis (1979) target state authority over national income and political modernization; and Tilak decries the level of economic development as a prerequisite for the educational development of girls (1989).

Obviously, these macrolevel characteristics are generally not readily subject to alteration or manipulation through policy intervention, at least not in an immediate sense by educational entities. Intervention strategies and policy formulation, consequently, rest conceptually on the latter two groups of determinants: school factors and household factors--or, alternatively, supply side and demand side factors.

Traditionally, governments, donors, and educators have tended to think in terms of supply, assuming that with enough schools, teachers, textbooks, etc., the educational system will produce the desired outcomes for boys and girls alike. Insufficient quantity and quality of educational resources limit student access to the system, constraining the educational participation of girls, who stand behind boys in the queue for rationed school places. Such improvements as more places, better classrooms, and greater per pupil budget, it is thought,

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[4]This is not to imply that multivariate analysis is not often used, but most analyses are focussed on determinants of girls' education and tend to mix macrolevel and ascriptive characteristics with variables that can be viewed as relevant educational interventions. Few studies actually compare multiple interventions.

[5]These general typologies have been developed and used by Safilio-Rothschild (1979), Bowman and Anderson (1980), Chamie (1983), Anderson (1988), El-Sanabary (1989), Tilak (1989), and others.

will eventually result in more girls in school. At base is the supposition that as schooling is desirable as a social good, its benefits at the private or individual level will be obvious, producing a high level of private demand for educational services. On one hand, demand is seen to outrun supply; on the other, supply side factors such as increasing and improving school resources for girls, are viewed as driving demand.

Yet as educational systems expand, there is evidence that in some low-income countries the gender gap is growing rather than declining. More recently recognized is the role household or demand factors play in determining girls' educational participation. The parents' decision to invest in schooling for their children is a complex--albeit informal--calculation of the private rate of return. Do the benefits to the girl and her family outweigh the costs to the same? Researchers have found that the private demand for educational services by the student and her parents is a function of household and family structure, societal characteristics, and socio-cultural beliefs, as well as of the direct and opportunity costs of participation (and absolute constraints of family income). Other factors, also external to the educational system, such as limited labor market opportunities and proscribed roles for women, conspire to keep girls out of school. The interaction of these three factors is depicted in Figure I-1.

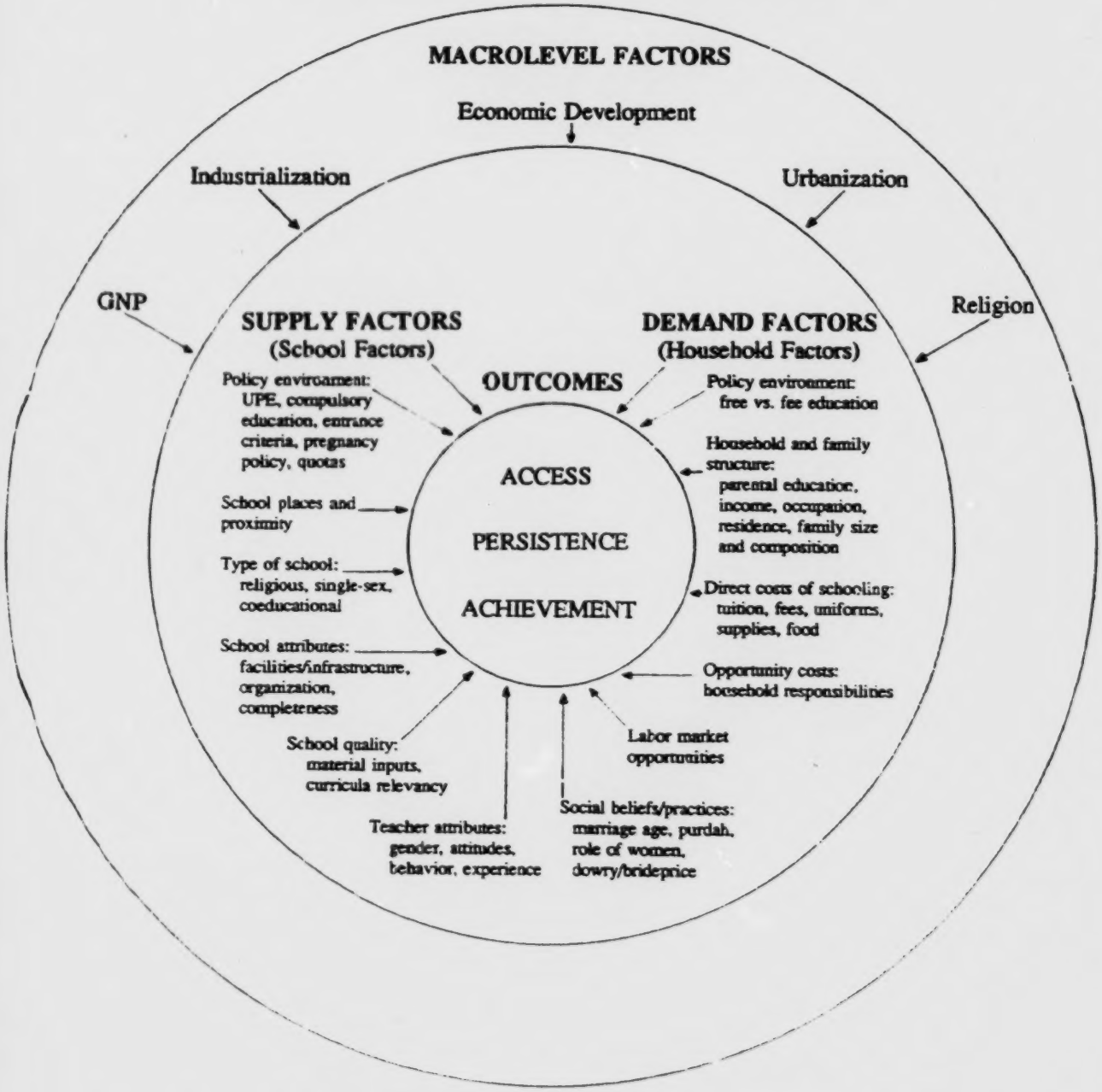
Not surprisingly, discussion centers on which type of factors--supply or demand--exert the most influence on girls' educational participation. At issue is whether the demand for girls' education is solely driven by the supply of schooling, which, by extension, would imply that interventions to improve girls' educational participation can be uniquely focussed on the school and the classroom. For example, on the supply side, El-Sanabary (1989) states "improving the school system may have the greatest impact on educational access, achievement, continuation, and outcomes"; Abraha et al. (1991) favor school factors over community; and Tilak (1989) asserts that "meaningful educational policies and programs rarely fail in delivering the goods."

On the demand side, Long (1990) points out that supply side efforts to increase female participation may directly compete with households' perception of girls' reproductive and productive roles, and Stromquist suggests that family factors are more important than school related factors (in Haddad et al. 1990). Shrestha et al. (1986), focusing on Nepal, provide proof: household and "...family factors taken together are a stronger determinant of a child's likelihood of attending school than are the characteristics of the school itself" and their effect on girls is twice as strong with no gender differences evident for school factors. Finally, a study in Papua, New Guinea supports both sides of the debate: "out-of-school" or demand factors primarily affect girls' enrollment, and "in-school" or supply factors influence girls' retention (Yeoman 1985).

These differences are not irreconcilable. The interaction between supply and demand factors jointly determines the levels of girls' educational participation. Ultimately, "the single greatest predictor of whether girls go to school or not is whether schools are made available and *accessible*" (Kelly 1987; emphasis added). Whereas availability of school places may

FIGURE I-1

Illustrative Macrolevel, Supply, and Demand Factors Affecting Girls' Educational Participation



uniquely be a function of supply side investment in infrastructure, accessibility addresses the broader issue of acceptability of girls' schooling and its implications for the demand of educational services. While available school places may provide the opportunity for enrollment, they may mean little to a girl whose family's survival depends on her daily contribution to household production (Jamison and Lockheed 1987). Demand factors, such as family income, social practices (e.g., female seclusion), economic roles of girls, number of siblings, age of marriage, gender-differentiated expectations of educational outcomes, etc., can limit the accessibility of schools for girls and their families.

Demand for educational services is rarely a result of a single factor, but rather an interplay of factors that causes families to keep their children away from school (Anderson 1988). For example, the barrier of low family income, with its negative implications for girls' educational participation, can be exacerbated by a change in the status and productivity of other women within the household (Caldwell, Reddy, and Caldwell 1985). The paucity of remunerative job opportunities for women, coupled with fears for their security, may discourage financially hard-pressed families from investing in their daughters' education. And apprehensions that a daughter's education may make her ineligible for marriage or that the benefits in her education may accrue solely to her husband's family are factors that can depress demand (Csapo 1981; Khan 1989).

Further, the behaviors of schools and families are reinforcing. Demand cannot be divorced from conditions of supply. People react to the specific schools offered them, not just the abstract idea of education (Jones 1980). Consequently, supply side interventions, such as quality improvements or tailoring programs to fit specific needs (e.g., single-sex schools or relevant curricula), can increase parental and girls' demand for education by responding to household factors that constrain girls' educational participation. Interventions must not only address the provision of more schooling; they must target barriers that keep girls out of school or inhibit participation, essentially countering those factors found to depress demand for schooling. The school interventions that are effective in a given context will often depend on decisions made on the demand side (King and Lillard 1983; Kerner 1986; Khan 1989; Long 1990).

Ultimately, intervention strategies and programs aimed at promoting girls' educational participation must respond to dual challenges: 1) increasing the availability of education by expanding the school places for girls, thereby increasing supply; and 2) improving the accessibility of education by increasing the benefits and reducing the costs of schooling for girls and their families, thereby increasing demand (Bellew and King 1991).

The treatment of interventions described in the following sections is organized according to the supply-demand paradigm. Starting with the formal system, we examine supply-side interventions, distinguishing between policy-level strategies and programs and/or projects, followed by demand side interventions. A summary of major interventions and their impacts is provided in Appendix A. As mentioned earlier, the treatment of interventions was altered somewhat to review the less traditional approaches and alternatives to formal schooling aimed

at reaching school-age girls who have either never been enrolled in school or have left school prematurely. It should be remembered that while the framework for analysis is useful across countries, each situation and context will uniquely determine the success or failure of the policy and program, and the effectiveness of the resource.

CHAPTER II

The Formal System: Supply-side Approaches

A. Policy Responses

Because so many of the initiatives in girls' education are of an experimental or pilot nature, we distinguish between policy-level and program- or project-level interventions and strategies, in addition to making the distinction between supply side and demand side approaches. Policies, implemented by governments on a national basis, establish the climate for reform and the agenda for action, and are likely to have more impact on the overall educational status of girls than more isolated programs. While most of the policies we examine below are by definition "gender-neutral"[6] (i.e., they apply to all children regardless of gender), in actuality they seldom have the same impact on boys and girls, and may have either beneficial or deleterious effects on girls' educational participation.

Several researchers have noted the greater elasticity of girls' educational participation in response to improvements or deterioration in the educational system and point to the efficacy of general policies of improving girls' educational participation at the margin (Bustillo 1989; Schultz 1989b). At the same time, as will be demonstrated, the policy declaration alone and gender-neutral policies are insufficient to close the gender gap. The following section includes discussions of two policy-level issues: universal primary education and policy implementation.

1. Universal Primary Education: Education for Some

Obviously, if girls are to go to school, there must be school places available to them. Since the early 1960s, increasing the supply of schools and teachers has dominated the educational development agendas of most developing countries. Many have proclaimed the goal of universal primary education and, in more recent years, have redirected their educational investments towards the primary level to provide access to schooling for the broadest range of children. It is evident that girls have benefited from general educational expansion: overall, more girls--both in absolute numbers and percentages of the total enrollment--are in school today than 20 years ago.[7] Yet it is also apparent from enrollment ratios that, with the exception of Latin America, girls and boys have not benefited equally.

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[6]We found scant evidence of gender-specific or gender-focussed strategies at the policy level, beyond general declarations of commitment to girls' education.

[7]Goldstone's gender disparity index shows that between 1960 and 1983 the number of countries with high gender disparity in primary education fell from 12 to 1 and the number with low gender disparity rose from 45 to 65. While 10 countries showed consistent improvement, 14 countries steadily deteriorated (in Anderson 1988).

In some developing countries, expansion of the educational system, although raising overall levels of participation and literacy, has reached plateau levels in girls' enrollments. In Tunisia, substantial growth in girls' enrollments was achieved in the 1960s and 1970s, with pent-up demand in certain segments of the population masking lack of demand in others. But over time, annual growth rates in girls' primary school enrollment declined from a high of 14 percent in 1960 to a low of 4 percent in 1980, leaving a sizable 44 percent of Tunisian girls in the 6-14 year age group outside the formal education system (compared with 22 percent for boys). With more children in school, demands for longer and better education by this constituency have increased, with the result that fewer resources are available for promoting primary school enrollment in harder- and more costly-to-reach groups, such as girls (Jones in Kelly and Elliott, 1982).

Similarly, in Egypt, educational expansion has its limits in increasing girls' enrollment. Demand for schooling does not outrun supply. Evaluation of a rural school construction program found that, in contrast to the 100 percent enrollment for boys in the new school villages, 74 percent enrollment was reached for girls, although school places remained available. It concluded that recruitment of the remaining nonenrolled girls would require more than additional school expansion, with efforts aimed at effecting "changes in parents' attitudes about the relevance of education and perceptions that the long-term benefits of education will offset such immediate family needs as child labor" (Robinson, Makary, and Rugh 1987).

In other countries, educational development has paradoxically resulted in widening the gender gap. Since 1970, the gender difference in school attendance has increased in Afghanistan, Nepal, and Pakistan (Lockheed and Verspoor 1990). Smock (1981) notes that after 40 years of educational expansion in Pakistan, the male rate of school attendance has increased 30 percent, the female 12 percent.

Similar tendencies are found in Africa. In Senegal, for example, the greatest disparity in literacy is between men and women in the best-educated, fastest-growing, 15-19 year-old age cohort. This disparity indicates that the differential of literacy attainment is widening between the sexes, to the detriment of women (Kinsey et al. 1990). In Guinea, the enrollment ratio for girls in primary school has declined in rural areas (USAID 1990d). And in Mali, a regional school expansion program had the perverse effect of increasing the number of primary schools by 3 percent, while female enrollment dropped by nearly a commensurate rate per year, leading to the conclusion that school expansion programs per se may have limited utility in increasing educational opportunities for girls (Bellew and King 1991).

As the universalization of primary education advances, not only does it become more difficult and costly to recruit the remaining nonenrolled students, often girls, but a 1970 UNESCO survey found that when countries expanded their primary educational systems to enroll 70 percent of the school-age cohort, wastage, i.e., dropout and repetition ratios, tended to increase due to "drawing on an increasing number of children from the vulnerable sections"

of society, i.e., girls and poor children (UNESCO/Regional Office for Education in Asia and the Pacific 1984).

Clearly, the push for universal primary education has not guaranteed equity. To date, progress in female enrollments has largely been a by-product of educational expansion, rather than a result of specific efforts aimed at getting girls into school by making them more accessible. Although it can go a long way in placing girls in classrooms, "undirected expansion is not a panacea for redressing gender differences" (Smock 1981). Nonetheless, some countries have had more success in expanding girls' enrollments through universal primary education than others. *Why?*

2. *Implementation vs. Legislation: Making Policy Count*

Examination of a few cases of positive deviance--notably, the experiences of Turkey, Sri Lanka, and Indonesia--provide some insight.[8] Although these countries seem to have no explicit policies to increase girls' access to education, their successful push towards the universalization of primary education for boys and girls is founded on the difference between legislation and implementation of educational reform in ways that are meaningful for girls.

Compulsory Education Legislation. Compulsory education legislation does not ensure equal access to schooling. While primary education was declared compulsory for boys and girls by the Egyptian government in 1924, the Malian government in 1972, and the Afghan government in 1978, these countries display discouragingly low rates of female enrollment. Little has been done to enforce the legislation (UNESCO Regional Office for Education in Asia and the Pacific 1984; Cuadra et al. 1988). The declining enrollment rate for girls in Guinea corresponds not only to the lack of enforcement, but also to the abolition of the compulsory education statute in the early 1980s (Long 1990).

By contrast, in Turkey, Sri Lanka, and Indonesia commitment to "education for all" is buttressed by deliberate policies and enforcement of regulations to make education compulsory. Turkey, with nearly half its population nomadic or in rural areas, has achieved 100 percent enrollment of girls and boys (El-Sanabary 1989). Sri Lanka's success is reflected in the literacy rate of the 10-24 year cohort of females, which hovers around 90 percent--approximately 1-2 percentage points behind males (Cuadra et al. 1988).

Compulsory education laws cannot be effective unless supported by congruent and concomitant programs, financing, and facilities. Sri Lanka's drive for universal primary education included several other measures: compulsory instruction in the mother tongue (be it Singhala, Tamil, or English) at the primary level; transfer of educational system management authority to the local level; school clustering policies to reduce interdistrict

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[8]With virtual gender parity in primary school access--although not attainment and achievement--Latin America deserves special mention. Available analysis, however, points more to the higher opportunity costs of boys' attendance depressing demand for male schooling than to deliberate supply-side policies benefitting girls.

disparities; federal financial assistance to schools to actualize "free" education; and provision of textbooks and scholarships (Green 1965; Cuadra et al. 1988). (The impact of such programs on girls' education will be discussed later).

Likewise, Indonesia raised girls' enrollment from 56 percent to 84 percent in less than a decade, reducing the gap between boys and girls in the 10-12 year age cohort to zero, by increasing education for all, but in ways beneficial to girls. Fueled by generous oil revenues, the Indonesian government combined expansion of the number of primary schools with free and compulsory primary education and nontraditional instructional strategies that particularly favored out-of-school girls (Cuadra et al. 1988) such as condensed curriculum, flexible scheduling, and specially designed programmed materials.

Early School-withdrawal Policies. Early school-withdrawal policies may be considered a corollary of compulsory education. Two atypical approaches to keeping girls in school exist in Nigeria and Papua New Guinea. The Bauchi State (Nigeria) prosecutes parents who attempt to withdraw their daughters from school for marriage and encourages girls to report such incidences (Eubi-Ajay 1990). Using a less severe approach in Papua New Guinea, "Community Liaison Helpers" monitor absentee pupils and truants, and actively encourage girls to return to school (APEID/UNESCO 1985a).

Open Admissions Policies. Open admission policies demonstrate the difference between legislation and meaningful interpretation and implementation. Although most countries claim de jure nondiscriminatory admissions policies to later levels of primary, secondary, and higher education, often admissions procedures result in de facto discrimination, with girls and low-income children as the principal victims. What is cheerfully called "first come, first serve" at the primary school level and espoused as nondiscriminatory may mask a biased selection process. Entrance to higher levels of education is frequently based on student scores on highly competitive tests. Disadvantaged children, including girls, have little chance of progressing through the system or acquiring the requisite skills. For example, Nkinyangi (1982) found in Kenya that an additional year of schooling (i.e., repetition of the final cycle year) increased the chances of promotion to the next level of schooling; but only richer parents could purchase this second chance for their children to successfully pass the qualifying exam.

In Botswana, it has been shown that the performance criteria for the Junior Certificate exam, particularly in the fields of science and mathematics, effectively eliminated 78 percent of girls from attending senior secondary school (compared with 56 percent of boys). Further, the channeling of girls at the senior secondary level into "soft" science over "pure" science courses literally disqualified them from higher education opportunities (Duncan 1989).

Opportunities for higher levels of schooling have been linked to enrollment and persistence of girls in primary school (DeTray 1988; Thein, Kabir, and Islam 1988; Bustillo 1989). Reducing girls' chances to enter secondary school may serve as a deterrent to girls' access and attainment at the primary school level, despite declared open admission policies. In

principle, open admission is blind to gender and class; in reality, it can be strongly influenced by both.

Relaxed Criteria. Some countries have responded by reducing admissions qualifications for girls. In Nigeria, lower cut-off points for admission into secondary and tertiary education have been established for girls (Eubi-Ajay 1990). Separate secondary school selection criteria for girls are used in Malawi (Lewis et al. 1990). Bangladesh's 4th Five Year Plan calls for relaxing admission restrictions (i.e., an eighth-grade education) to allow more girls to enter civil and mechanical drafting courses at vocational and technical training institutes (World Bank 1990). A cautionary note, however, is in order. As part of the 1962 Educational Reform in Guinea, the government took affirmative action to encourage girls' enrollment and retention by lowering exam pass rates, instituting instruction in maternal languages, and reserving university places. Girls' (and boys') enrollment fell in a backlash effect as parents perceived schools to be of lower quality and less effective in transmitting desired skills (Long 1990).

Quota Policies. A very few countries have instituted progressive quota policies or positive discrimination measures favoring girls at the junior and senior secondary levels. Since 1972, Malawi has selected girls at a ratio of 2:1 over boys for conventional secondary school, with the somewhat unsatisfactory result that 35 percent of its First Form students are female (Lewis et al. 1990). Papua New Guinea positively discriminates in the selection of girls for grade 6 (APEID/UNESCO 1985a). Significantly, we found no mention of school places being held open specifically for girls at the entry level or early years of primary school, although 50 percent of upper primary school *scholarships* are reserved for girls in Bangladesh (Anderson 1988).

Pregnancy Policies. In addition to elevated qualification criteria, pregnancy policies are policy-level barriers that keep girls from progressing and completing school cycles. Most evidence found on the subject of schoolgirl pregnancies indicated that the education sector treats pregnant girls harshly with expulsion from school, often with no readmission. Unwanted pregnancies are cited as a major cause of adolescent girls' attrition from school in Africa, with notably high rates in urban centers like Accra, Lomé, and Nairobi (Stromquist, n.d.).

In Botswana, 15 percent of the girls at junior secondary and 10 percent of the girls at high school levels (75 percent and 85 percent of all female dropouts, respectively) are forced to leave school due to pregnancy (Duncan 1989). Although national policy calls for the expulsion of the girl as well as the boy responsible for fathering the child, another study found that, among female dropouts, 56 percent of girls quit school because of pregnancy, while only 3 percent of boys were expelled for the same reason (USAID 1991). Similarly, in Malawi and Egypt the governments require the permanent expulsion of the pregnant girl, and in Tanzania, fines are imposed (Lewis et al. 1990; Laura Raney, per. com. 1991). A slightly more liberal policy in Senegal permits re-application for school admission after mandatory

expulsion, contingent on changing schools and presenting a marriage certificate (Kinsey et al. 1990).

Sex Education. An obvious solution with equally obvious problems, sex education is seldom incorporated into the primary or secondary school curricula of developing countries; when it is, instruction is generally limited to biological aspects of reproduction, avoiding discussion of contraception and the emotional and moral aspects of human sexuality. Population education, introduced under United Nation auspices, is more likely to be found in developing country curricula. Avoiding topics of controversy, the program emphasizes the economic and ecologic implications of population growth rather than the mechanics of family planning. Even in China, notable for its aggressive family planning campaign, the extent of education for girls until recently was limited to exhortations "that they must guard their chastity until marriage..." (Stromquist, n.d.) Only in Cuba is systematic sex education being implemented (Stromquist n.d.). Its efficacy is unknown.

Investment in Primary Education. In the 1960s and 1970s, the "manpower" planning approach to educational development called for massive investment in vocational/technical, secondary, and higher levels of education, in order to respond to the needs of modernizing and industrializing economies. Primary education was not an investment priority. Given the tradition of female employment within the home in many developing countries, the educational system almost by definition precluded girls from participation. Despite the recent restructuring of many educational budgets in favor of basic and primary education, continued emphasis on higher levels of schooling is especially disadvantageous to girls, many of whom will never have the opportunity to enter or complete primary school.

The situation in Egypt exemplifies the problem of underinvestment at the primary level. Despite a long tradition of women's education, 35 percent of the female school-aged population is not enrolled in primary school, and the country continues to fall further behind in gender disparity index comparisons at the primary level. Yet, in the field of higher education for women, Egypt is a leader in the developing world, rapidly closing the gender gap--indicating that higher education for an elite corps of students may indeed be financed at the expense of basic education for the majority of girls. A government policy favoring female education, without a particular focus on basic education for girls, does little to increase overall female literacy and numeracy (Silliman 1987).

These investment decisions are not easily reversible. Rapid expansion of secondary education following independence in Kenya increased the relative proportion of male enrollments for a 10-year period (Smock 1981). Such disparities are self-perpetuating, as educated students and their parents increasingly demand more education and place pressure on the government to accede to their demands (Kinsey et al. 1990).

A unique policy in India encourages state-level efforts to promote girls' educational participation. A *national incentive program* offers monetary rewards to those states showing the best performance in advancing girls' education--with the stipulation that it be reinvested

for more girls' education, of course (APEID/UNESCO 1985a). No data on results are available.

At the school level in Pakistan, teachers, principals, and assistant education officers are awarded *advanced salary increments* for reaching 98 percent enrollment of male and 50 percent enrollment of female first graders, as well as for maintaining these levels in grades 2 and 3 (Lockheed and Verspoor 1990). Again, no data on results are available.

B. Program Responses

The following examines educational programs or projects that do one of two things: 1) support and operationalize the gender-neutral policy goals of universal primary education and educational expansion with ramifications for girls' educational participation; or 2) address equity issues, focussing specifically on improving girls'access, persistence, and achievement in the formal educational system. Unlike policies, these interventions are not necessarily implemented on a nationwide basis but are more often employed in problem areas, such as rural and remote regions, where educational enrollment is low and wastage high. Further, the interventions may be of an experimental or pilot project nature (and often funded by donors), and will not necessarily be sustained or expanded by the government.

1. Bringing Schools Closer to Girls: Innovative Measures to Expand Primary Schooling Opportunities for All

With expanding populations and diminishing educational budgets, educational planners have turned to a variety of creative solutions to increase educational opportunities: from strategic school placement and multigrade classrooms to programmed learning and flexible scheduling. While the impact on girls of many of these innovations is unknown, some have proven particularly effective in attracting girls to and keeping them in school. Others have suffered disappointing results.

School Mapping and Satellite Schools. Proximity to or distance from school is frequently cited as a major variable or determinant of girls' educational participation. A proxy measure for cost and/or safety, distance to school is generally supposed to have an inverse relationship with girls' access and attainment. The importance of school location may vary with the context. In Egypt, girls' educational participation was found to be more sensitive to distance than boys': an incremental increase from 1.5 kilometers to 2 kilometers was associated with only a four percentage point drop in boys' attendance, but with an eight percentage point drop in girls' attendance (Robinson, Makary, and Rugh 1987). In the Philippines, girls' enrollment increased 3 percent, compared to boys' 1 percent, if the school were located in the village or within a short distance. Attainment increased as well (King and Lillard 1983). In Indonesia, Scott concludes that when educational facilities are available and *accessible*, daughters are likely to be given equal opportunities to go to school (in Tilak 1989).

However, other research shows that in some high gender disparity countries, distance may not be as influential a factor. In Bangladesh, 84 percent of the female dropouts interviewed lived within one mile (1.6 kilometers) of school; in India, 90 percent had access to school within 1 kilometer (Islam and Sattar in Khan 1989). In Ethiopia, many girls who live close to school choose not to enter (Abraha et al. 1991). And in Nepal, one study found that distance affects boys' attendance more than girls' (CERID 1984), while another study contends distance has no effect on either boys' or girls' attendance (Jamison and Lockheed 1987). Nonetheless, qualitative and anecdotal evidence suggests that parents are likely to perceive travel to school--regardless of distance--as more of a threat to their daughters' security than to their sons' (Anderson 1988; Khan 1989).

One solution is to *bring schools closer to girls*. The program response is school mapping, the strategic placement of schools in areas of low coverage, such as rural areas, in order to make available school places more accessible to students, particularly girls for whom distance is a deterrent.

In Bhutan, for example, where parents are reluctant to send their daughters to school if it is not within walking distance, government investment has been redirected toward building rural schools to increase access of the majority of the population. The results are more girls enrolled in school, with girls entering primary school at the same rate as boys (although their attrition rate is greater), and a new generation of educated parents, who enroll their children in school and enroll them at earlier ages (APEID/UNESCO 1985a). Bhutan has also initiated multigrade "feeder" or satellite schools that girls can attend for the first two or three years of primary education. These schools, in rural and remote areas, are located some distance away from regular, complete primary schools. Preliminary data show higher enrollment and retention of girls (USAID 1990c).

Counter to Islam and Sattar's findings previously mentioned, satellite school programs that reduce distance to school have enjoyed success in Bangladesh. Bangladesh's General Education Project is currently introducing a satellite schools program to bring schools nearer to girls in the first three grades, staffed with a predominantly female teaching force and based on flexible timetabling to suit girls' needs (World Bank 1990). An earlier experiment in the Mehr-Panchagram district developed feeder schools staffed by local women for girls in grades 1 and 2. Parents were interested: there was 100 percent participation and retention. Notably, providing for the transfer of girls to local, regular primary schools was identified as the key to the program's success (APEID/UNESCO 1985b).

It should be noted, however, that lack of local, complete primary schools can depress girls' enrollment at the primary levels. In Asia (Johnstone 1976) and in Malaysia (DeTray 1988) parents withdrew their daughters early or did not enroll them at all because there was little chance of their completing the primary cycle (in Tilak 1989). Also, in Malaysia, negative assessment of their chances for further education affected the decisions Chinese girls made not to continue in school (Wang 1983).

Boarding Schools. In many low-income countries, distance is likely to become an almost insurmountable barrier to girls' educational access as grade levels increase--particularly for upper primary, junior, and senior secondary school. Where schools are not available, governments have attempted to *bring girls to schools* through the creation of boarding schools. This strategy has had mixed results.

Both China and Malaysia have organized boarding schools and hostels for girls at the secondary levels (UNESCO Regional Office for Education in Asia and the Pacific 1984; APEID/UNESCO 1985a). As part of its massive campaign to universalize primary education, the government of Turkey established regional boarding facilities for children from sparsely populated areas, with apparent success (El-Sanabary 1989). Bhutan's satellite schools feed into Development Service Center Schools (DSC), which provide boarding facilities for children in upper primary grades (grades 4-6) who have successfully completed grade 3. The government believes that provision of dormitories at the upper primary levels will encourage parents to send their daughters to school by alleviating travel and accompanying fears for their safety, and also motivate lower grade enrollment by insuring that successful students will have the opportunity to continue their education (Bellew and King 1991).

But fear for their daughters' personal safety and moral security, and the costs--both direct and indirect--associated with boarding schools have contributed to less-than-successful results in other countries. "Some families may send their sons to boarding schools, but not let their daughters live away from home" (Jones 1980). In Yemen, where the cultural and religious tradition of sex segregation requires separate facilities for boys and girls, the Open Separate Facilities Program--providing segregated primary schooling for girls in rural areas--failed because the distance was too far for girls to travel and families would not permit them to leave the home to board (USAID 1984; Cuadra et al. 1988). Mention of sanctions against male teachers for sexual relationships with their female students--in Kenya, Papua New Guinea, and Botswana, for example--may indicate that parental fears have some basis in fact. Indeed, reports of violence directed towards girls in a Kenyan boarding school tragically lends credence to these apprehensions ("Kenya: A Night of Madness" 1991).

In Kenya, "low-cost," government-run boarding schools created to increase pastoral children's educational opportunities proved too expensive for parents who were expected to supply beds, bedding, and cutlery, as well as pay a boarding fee. When the cost of lost domestic labor was included, these schools did little for the disadvantaged nomadic girls and boys they targeted, but merely augmented the already abundant supply of schooling for elite and more prosperous families (Nkinyangi 1982).

Multiple School Shifts, Larger Class Size, and Multigrade Classrooms. These have been adopted by many countries to increase school capacity (and hence enrollments) and reduce unit costs of instruction. Student performance results of experiments with these innovations have been qualifiedly positive (Lockheed and Verspoor 1990). Little data exist on their effects on the educational participation of girls, although evidence suggests that disadvantaged

children--including girls--may suffer more from program shortcomings or inadequate implementation than other children.

A study of factors shaping girls' participation in 182 primary schools in Ethiopia, however, found that more "crowded" schools, i.e., multiple shifts or large class size, did not detract from girls' persistence or performance (Abraha et al. 1991). Although girls tended to have a lower pass rate in rural schools with a higher pupil:teacher ratio, the lower rate was not statistically significant. In fact, multiple shifts correlated positively with girls' educational attainment, reflecting a broad and deep social demand for girls' education. The authors concluded that "the strong demand for schooling pushes girls through school far more forcefully than any intervening effects from discrete indicators of educational quality."

While small multigrade primary schools in the Koulikoro region of Mali were associated with declining girls' enrollment (Bellew and King 1991), a multigrade school program in Latin America has enjoyed considerable success. Colombia's Escuela Nueva Program is designed specifically for multigrade classroom instruction in rural areas. Employing semi-programmed curricular materials, specialized classroom design, and continuous teacher inservice training to meet the challenges of multigrade instruction, Escuela Nueva has demonstrated positive results in its 15,000 rural public schools. In comparison with traditional schools with one teacher per grade, student wastage is notably reduced (Lockheed and Verspoor 1990). Escuela Nueva experiences lower repetition rates (47.2 vs. 53.9), as well as reduced dropout rates in grades 2 through 5, although the first grade dropout rate is slightly higher in Escuela Nueva. However, at the fifth grade, Escuela Nueva records more students enrolled at the end of the school year than at the beginning, indicating that the innovative program attracts additional students (Schiefelbein 1991). Unfortunately, enrollment and persistence data are not disaggregated by gender. However, girls, in particular, are reported to have benefited from the flexible promotion and module learning that accommodates their household chores (Colclough and Lewin n.d.). Where multigrade schooling is accompanied by specifically designed programs, quality learning materials, and trained teachers, it indeed appears to be effective in expanding educational opportunities for girls and rural children.

Programmed Learning. Programmed learning, or learner-centered instruction, offers a low-cost means to expand school capacity to increase access, improve instructional quality to raise attainment and achievement, and promote the equitable distribution of educational outcomes. By standardizing instruction across different population subgroups, schools, and regions, programmed teaching and the use of programmed instructional materials is thought to equalize the treatment received by boys and girls in the classroom and thereby minimize achievement differentials.

Programmed learning, the step-by-step scripting of teacher presentations and student instructional materials in modular units, readily adapts to flexible scheduling and progression/promotion sequencing, which permits students to learn at their own pace (Lockheed and Verspoor 1990). This allows for the frequent absences of girls charged with childcare and household production tasks, particularly in rural and agricultural areas. Without

such modifications in the school calendar, these girls, if they persist in school, often repeat the same grade several times, which discourages parental investment, and rarely complete the early primary cycle (Tietjen and Fass, in progress). Khan (1989) notes that this pattern of repetition causes girls to be overaged, which, combined with late entrance and withdrawal at puberty in some countries, contributes to low educational attainment.

The Escuela Nueva Program (mentioned earlier) in Colombia has based its instruction on semi-programmed learning guides and curricular modules that emphasize problem-solving skills. The curriculum content is community-oriented and relevant to the rural milieu. At "resource corners" students may work alone or with other students. As noted above, this approach--by taking into account local conditions, the agricultural calendar, and girls' time constraints--has proven successful in raising children's educational participation. By progressing at their own pace, girls are able to complete grades and progress in the school cycle (Lockheed and Verspoor 1990; Schiefelbein 1991; Coclough and Lewin n.d.). Student achievement is higher in Escuela Nueva schools than in traditional rural schools. The program's third and fifth graders scored considerably higher in both mathematics and Spanish (the grade levels and subjects evaluated), proving that the reduced wastage rates are a result of higher achievement, not lower standards (Schiefelbein 1991). Escuela Nueva students also registered higher academic self concept, social/civic attitudes, and self esteem than traditional schools. Most significantly, the self-esteem of girls in Escuela Nueva schools equalled that of boys', controverting evidence of girls' low self-image from around the world (Schiefelbein 1991). Not only have its students attained higher levels of achievement than students in traditional schools, but student motivation and creativity have increased (in Lockheed and Verspoor 1990).

Programmed learning/teaching is at the core of a well-known series of projects, known under the umbrella name IMPACT, which have been implemented in the Philippines, Indonesia, Malaysia, Jamaica, Liberia, and Bangladesh in both formal and nonformal settings. Although varying somewhat in goals, content, and approach, these projects unite self-paced, individual instruction with peer tutoring, community and parental involvement, instructional supervisors, and modular instructional materials. Although results have been mixed in terms of cost, sustainability, and community acceptance, the concept of programmed materials has proven viable (Cummings 1986).

Only in Liberia do we find evaluation of student performance results disaggregated by gender--with ambiguous results. An IMPACT project, the Liberian Improved Efficiency of Learning Project (IEL), developed and employed programmed teaching and instructional materials in primary schools. An evaluation study examined gender differences in math and English achievement in grades 3, 4, and 5 of project schools, and compared them with conventional and textbook-enhanced schools. Overall, the IEL student scored higher than the comparison groups, but not only did IEL boys outperform IEL girls in both math and English, the greatest gender differences occurred in IEL schools. In short, the researchers concluded, programmed instruction seemed to enhance student achievement while concurrently increasing the gender gap.

Explaining the results, the researchers postulated that the increased demands that programmed instruction places on students in terms of study time and homework puts girls, burdened by domestic chores, at a disadvantage and "limited their ability to take full advantage of the enriched learning environment" (Boothroyd and Chapman 1987). We are left with an apparent conundrum: *do we improve student achievement and increase the distance between boys and girls, or do we use less effective means that have less inequitable results?*

Interactive Radio Instruction. Interactive radio instruction combines with programmed instruction to improve instructional quality in the classroom and supplement teacher instruction. It is based on frequent student responses, immediate reinforcement, and modular radio lessons. Projects, mainly in math and English instruction, have been undertaken at the primary school level in a number of countries, with a notable degree of success in improving achievement scores. Nearly all studies have disaggregated results by gender, finding significant gains in achievement in all cases but *no significant difference between boys and girls*. Although in the Nicaragua Radio Math Project girls pre-tested and post-tested worse than boys, gender disparity did not increase. Unlike programmed learning, radio instruction does not rely heavily on the intervening agency of the teacher, whose attitude and behavior may favor boys, which may explain the generally equal scores of boys and girls (Friend, J., pers. com. 1991). (For a discussion of interactive radio instruction in a nontraditional setting, see Chapter IV.)

Flexible Scheduling and Promotion. As noted above, flexible scheduling and promotion respond to the reality of children's domestic responsibilities, which often prevent them from attending school. Few countries, notably Escuela Nueva in Colombia, have initiated formal school programs that deviate from the typical 8 am - 1 pm class schedule of conventional schools or the one-year-per-grade progression schedule.

2. Making Schools Acceptable: Culturally Appropriate Schools

In many areas of the world, parental concerns for their daughters' physical safety and moral security are of paramount importance and a prime factor influencing girls' educational access and attainment. Where the practice of female seclusion--or purdah--prevails, as in parts of North and SubSaharan Africa, the Middle East, and Asia, girls' mobility is constrained and interaction with males restricted, as early as age eight. This means that many girls are withheld from school or that they are withdrawn at puberty. Because their schooling is truncated by seclusion and/or early marriage, girls never attain basic academic skills. Schools must be made acceptable to parents. Responding to parental concerns and conforming to cultural and community standards are features of the programs discussed below.

Religious Schools. Several studies have observed a growing tendency in Islamic countries to send girls to religious schools (Cuadra et al. 1988; Tilak 1989). This is particularly notable in areas of stagnating or falling girls' enrollment--for example in West Africa where Arab countries have contributed funds for improving school infrastructure and provided teachers. In Mali, *medersas*--privately funded, Islamic elementary schools--account for 23 percent of

primary school enrollments, with the girls' enrollment rate at 47 percent compared to 32 percent in public schools (Bellew and King 1991). Likewise, in Malaysia (F. Don in Tilak 1989) religious schools were effective in enrolling girls. In fact, more girls than boys enrolled in these schools.

What explains parental preference for religious schools? There is a long tradition of religious schooling in Moslem countries. Islamic education may be provided through Koranic schools, medersas, or mosque schools. Run by Imams, *Koranic schools* provide only religious instruction in the Islamiya and the Koran. Although not a substitute for primary school, literacy (in Arabic) is sometimes a by-product of studying the text of the Koran. Analogous to Christian catechism classes, students attend Koranic schools before or after regular school hours. Koranic schools do not always accept girls or may discourage their attendance (M. Rihani, pers. com. 1991). *Medersas*, on the other hand, teach the nonsecular primary and secondary school curricula, in addition to the Koran and Arabic, and teachers and directors may be lay personnel. Girls are not excluded from participation. Finally, *mosque schools*--found in South and Southeast Asia--are attached to a mosque and under the direction of an Imam. They offer religious instruction and may provide literacy training, although a regular primary school curriculum is not followed.

In addition to providing literacy and religious education, medersas and mosque schools are perceived as promoting traditional social values, unlike westernized public schools, and there is some indication that parents believe that their children gain literacy skills faster and more efficiently, liberating them from years of costly schooling (Bah, pers. com. 1991). For girls, these schools may be more culturally appropriate, offering the propriety and moral security of a sheltered and traditional environment and the assurance that modern values will not undermine the girl's role as obedient daughter and dutiful wife and mother.

Recognizing this, governments in several countries--Mali, Pakistan, Bangladesh, Kenya, Mauritania, and Gambia--have supported accreditation and introduced the government primary school curricula and trained teachers into religious schools in order to expand school stock as well as educational opportunities by responding to cultural attitudes and practices (Bellew and King 1991).

In Pakistan, the Mosque Schools Program, initiated in 1978, has attempted to build on the established and influential structure of mosque schools in order to extend schooling to rural children, particularly girls, not yet reached by government schools. The program, working with the Imam, supports three years of basic education, and provides free textbooks and a government-paid trained teacher. Students are eligible for admission to the public school system at any stage (Anderson and Chaudry 1989).

Because mosques have long provided religious education to girls, the program hopes to attract girls, relying on the force of cultural tradition and the respected figure of the Imam to allay parental fears for their daughters' security. The mosque schools respond to specific

constraints to girls' education, by providing three things: 1) a clean and safe environment; 2) female teachers; and 3) flexible schedules to conform to domestic chores of girls.

Did the mosque schools increase girls' educational access? Higher enrollment and attendance rates for girls were evidenced, but researchers were unable to attribute this trend to the Mosque Schools Program or to generally rising rates of girls' educational participation. Of the 26,000 of the mosque schools in Pakistan participating in the program, only 30 percent of enrollments were girls, somewhat smaller than the government school norm. Although the majority of Imams preferred mosque schools for girls over public schools, 50 percent of the mosque schools had fewer than 5 percent girls enrolled. Girls from somewhat poorer communities were more likely to attend mosque schools. Existence of other schooling options, i.e., a government school, in the vicinity lowered parental demand for girls to attend mosque schools (Anderson and Chaudry 1989).

Special attributes of the program--the presence of trained, experienced teachers and the provision of textbooks and facilities--seemed to exert little effect on parental decisions to enroll their daughters. But proximity and religious training were important factors in girls' attendance: mosque schools motivated parents to send girls to school, particularly when it was the only alternative and was located no more than 1 kilometer from the girls' village (Anderson and Chaudry 1989; Warwick, Reimers, and McGinn 1989). Girls who otherwise would probably not have been in school enrolled in mosque schools.

However, the educational quality of the mosque schools has been contested. Evaluators, citing the illiteracy of many of the Imams, conclude: "Mosque schools can be rated high on financial efficiency, cultural acceptability, and quantitative success, low on the capability of implementors, and doubtful on the quality of schooling provided" (Warwick, Reimers, and McGinn 1989).

Appropriate Facilities. Reportedly, parents object to the lack of basic facilities at schools, notably latrines and boundary walls, considered necessary to protect their daughters' modesty and security. In Bangladesh, where 71 percent of rural schools and 53 percent of urban schools have no latrines, families have withdrawn girls from schools for this reason (Ahmed and Hasan in Khan 1989). A survey of 2,000 Pakistani parents indicated that the absence of latrines was more important in schooling decisions that the absence of desks and chairs (Culbertson et al. 1986), although Anderson et al., in a study of mosque schools (see above), found no significant effect. Both countries have instituted programs to respond to concerns about propriety and security. Bangladesh has provided latrines with reportedly positive results; Pakistan has constructed boundary walls (Bellew and King 1991).

Single-sex Schools. Where proscriptions against girls' presence in public and interaction with nonfamily members are strong, frequently in Muslim countries, sex-segregated schools may provide the only venue or opportunity for girls to participate in the educational system. The provision of single-sex schooling varies: in Saudi Arabia, Pakistan, and Kuwait, strict segregation is enforced after kindergarten (El-Sanabary 1989; Lockheed and Verspoor 1990);

and in Yemen it is--theoretically--enforced after 4th grade (Cuadra et al. 1988). In Turkey and Tunisia single-sex schooling is prevalent, although not mandated, at the primary levels (El-Sanabary 1989). Bangladeshi parents have expressed the desire for separate schools even at the primary level (Khan 1989). In India, 20 percent of girls leave school at puberty, in part due to the lack of segregated facilities (Stromquist 1989). That parents prefer sex-segregated schooling is evidenced in Yemen: retention of girls to the sixth grade was highly correlated with the availability of local female-only schools (USAID 1984b).

But separate does *not* mean equal (Smock 1981). All-girl schools often suffer from inadequate resources, which restricts both their availability and quality. Duplication of schools at the village level is often cost prohibitive in rural areas, making coeducation and hence noneducation of girls a de facto reality (Anderson 1988). El-Sanabary (1989) notes that where educational authorities have to provide separate facilities, particularly in sparsely populated rural areas and villages, girls' schools, if not absent, are incomplete. And partial attempts at responding to the need for single-sex schools can be discouraging. The government of Yemen launched the Open Separate Facilities Program, opening a number of all-girls primary schools at district and regional levels. Unfortunately, the schools proved too far for parents to allow their daughters to attend, and many remained underutilized (Cuadra et al. 1988).

Girls' schools are not only fewer in number, but they are also disadvantaged relative to boys' schools and coeducational schools. In general, they are staffed by teachers--mostly women--undertrained in mathematics and science. In Thailand, Jimenez and Lockheed (1988) found that girls' schools are larger, have fewer qualified teachers in mathematics, and have teachers who spend more time maintaining order. Girls' schools are often not only inferior in general physical condition, but lack specialized educational and recreational facilities, such as libraries and laboratories, equipment, boarding options, and cafeterias (El-Sanabary 1989). Poor quality schools may convince parents to keep their daughters at home.

Surprisingly, despite these problems that would appear to mitigate the effectiveness of girls' schools, single-sex schooling for girls seems to not only increase access, but also raise girls' attainment, achievement, and aspirations. These findings are congruent with the body of U.S. and European research.[9] Although often conducted at the upper primary or secondary levels, numerous studies in developing countries underscore the efficacy of sex-segregated schooling for girls:

- In Thailand, a study comparing 8th graders in single-sex schools to coeducational schools found that, even controlling for student background, single-sex schooling was more effective for girls in terms of math achievement and exerted strong positive influence on girls' self-perception. Coeducational schooling, on the other hand, was more effective for boys (Jimenez and Lockheed 1989).

[9]See, for example, Gilligan 1982; Lee and Bryk 1986; and Gilligan, Lyons, and Hanmer 1990.

- In Nigeria, a similar study measured comparative effects on mathematics achievement and attitudes of single-sex and coeducational schools at the 9th grade level. Again, controlling for student background, attitude, teacher characteristics, and practices, sex segregated schooling had positive effects on female students and negative effects on male students. All-girls' schools increased Nigerian girls' math achievement scores and engendered less stereotypic views of math (Lee and Lockheed 1989).

- Also in Nigeria, another study found single-sex schooling important in explaining 9th grade girls' math achievement. A similar study conducted in Swaziland, produced comparable results (Lockheed and Komenan 1988).

- In Jamaica, a survey of 14 percent of the 11th grade population demonstrated that, controlling for socio-economic factors, single-sex schooling resulted in superior levels of achievement in geography, chemistry, and biology for both boys and girls, but that girls in single-sex institutions registered the largest percentage of A's in science, while girls in mixed schools scored lowest, with boys in single-sex schools and coeducational schools ranking second and third of the four groups (Hamilton 1985).

- In Malawi, girls-only schools in Blantyre typically reported higher primary school leaving exam pass rates, but found no significant difference between girls' and boys' performance in single-sex schools. Girls in coeducational institutions, however, underperformed (Lewis et al. 1990).

- In Saudi Arabia and Kuwait, where the sexes are segregated by policy, girls outperformed boys academically in both science and literary subjects (El-Sanabary 1989).

- In Kenya, girls in single-sex schools in Nairobi at the secondary school level (3rd year) performed as well as boys in single-sex schools and significantly better in mathematics than students in coeducational institutions (Boit in Hyde 1989).

A summary is provided in Figure II-1.

There are a few studies, however, that have found some negative effects of single-sex schooling for girls. In Peru, for example, single-sex schooling for girls at the secondary level was associated with a higher rate of pregnancy, and class participation clustered at extremes (i.e., girls' behavior was either highly participatory or not at all) (Lafoss, Hernandez, and Chira 1987 in Stromquist n.d.). In Swaziland, girls in single-sex schools did not choose available physical science courses as frequently as girls in coeducational schools, opting instead for mathematics and agriculture (Wheldon and Smith in Hyde 1989). And in Yemen, although single-sex schooling elevated girls' academic performance, it also prepared them to occupy separate spheres in the labor force, with the majority of females concentrated in the health sector (Stromquist n.d.).

FIGURE II-1
The Efficacy of Sex-segregated Schooling: Research Results

Country	Study	Results for Girls	Source
Thailand	Compared 8th graders in single-sex and co-educational schools	Improved math achievement and self perception	Jiminez and Lockheed (1988)
Nigeria	Compared 9th grade achievement of girls in single-sex and coeducational schools	Improved math achievement Reduced stereotypical views of math	Lee and Lockheed (1989)
Swaziland, Nigeria	Studied achievement of 9th grade girls	Improved math achievement	Lockheed and Komenan (1988)
Jamaica	Surveyed 14% of 11th grade population	Superior levels of achievement in geography, chemistry, and biology by boys and girls Higher performance than boys in science Lowest performance in coeducational schools	Hamilton (1985)
Malawi	Compared girls' and boys' performance in single-sex and coeducational primary level institutions	Higher primary school leaving pass rates in single-sex schools Comparable performance to boys in single-sex schools	Lewis, et al. (1990)
Saudi Arabia Kuwait	Compared girls' and boys' performance in school systems segregated by policy	Higher performance than boys in science and literary subjects	El-Sanabary (1989)
Kenya	Compared performance of girls and boys in single-sex schools and coeducational schools at the secondary school level	Comparable performance to boys in single-sex schools Higher performance in mathematics than studies in coeducational institutions	Boit in Hyde (1989)

Nonetheless, the weight of evidence in terms of girls' academic performance, educational aspirations, social and academic attitudes, courses of study, and other school-related behavior is preponderantly positive, even for girls at the upper primary grades, where it is argued that gender differences should not be as pronounced as at later grades.

Why are single-sex schools so effective for girls? There are several explanations. The first--which must also be regarded as a caveat to the apparent benefits of sex-segregated schooling--is essentially one of selectivity bias, readily acknowledged by researchers. Although attempts were made to control for intervening variables such as personal and family background, student ability, school type (public or private), school attributes, and school selection by parent or students, girls in single-sex schools may reflect social advantages in ways not captured by control variables. Apart from these potentially mitigating factors, single-sex schools' success has been attributed to one or more of the following factors:

- Peer effects, rather than classroom or school characteristics (Jimenez and Lockheed 1988). The authors speculate that class participation and leadership opportunities are greater for girls in all-girl settings. Other studies have shown that males, who have higher prestige, behave more assertively in mixed gender settings, to the detriment of females (Lockheed in Stromquist 1986).

- Absence of gender stereotyping, which encourages girls to excel and choose less "feminine" courses of study such as math and science. El-Sanabary (1989) notes that students in coeducational settings revealed more sex-typed orientations and roles, and Hyde (1989) refers to the "hidden agenda" in coeducation that places girls in a secondary and inferior role.

- Teacher attitudes and behavior, which are thought to influence girls' performance and outlook. In Ghana, teachers tend to ignore girls and isolate them in the back of the classroom (El-Sanabary 1989). In Malawi, girls sit to one side of the room, where teachers seldom direct instructions and questions (Lewis et al. 1990). All-girls' schools, says Hamilton (1985), reduce stereotyping in teacher behavior because they have no opportunity to exercise gender favoritism.

- Characteristics of the teaching process. Teaching practices rather than teacher qualifications are more predictive of girls' higher achievement in schools (Lockheed and Komenen 1988). Lee and Lockheed (1989) found that time usage in girls' schools was more productive: more time was spent on teaching and less on evaluation. Jimemez and Lockheed (1988) found that in Thai boys' schools, more time was devoted to testing and quizzes.

- School attributes. In Nigeria, the relatively smaller class size, more favorable student teacher ratios, and more intimate environment of smaller girls' schools may offset a general lack of resources (Lee and Lockheed 1989).

- Matching student-teacher genders, which "may foster symbiotic and supportive relationships between female staff and students," with girls being inspired to achieve by role models in daily evidence (Lee and Lockheed 1989). For example, girls in coeducational institutions seldom come into contact with female mathematics teachers.

Despite the lack of conclusiveness (and sometimes contradictory evidence) about the reasons for the effectiveness of single-sex schooling for girls, the research shows that something important and positive is occurring in girls' schools in terms of achievement and attitude. Single-sex schools for boys, on the other hand, seem to have the opposite effect (Lee and Lockheed 1989). The challenge then is to reconcile the characteristics of a single-sex school, which isolates girls from boys, with the political and economic reality of coeducation, which clearly favors boys. *How do we craft the schooling process so that girls benefit?*

Female Teachers. One way to help girls benefit more is to promote and ensure the presence of female teachers in the classroom. Female teachers are thought to be effective in promoting girls' educational participation--access, persistence, and achievement--for a variety of reasons. The evidence is mixed.

Like single-sex schools, the presence of female teachers in the classroom may alleviate parental concerns for their daughters' modesty and moral security. In Yemen, the reluctance of parents to send their daughters to school (by grade 4 or 5) was overcome by introducing female teachers into the classroom: retention of fourth and fifth grade girls correlated highly with the presence of female teachers (USAID 1984b). For example, at one rural school, a precipitous drop in girls' enrollment in grades 4-6 was attributed to the departure of the female teacher who taught those grades (Cuadra et al. 1988). A close positive correspondence between the presence of female teachers and girls' enrollment was found in the Philippines (Tilak 1989). In Nepal, the percentage of female teachers in school had positive effects on enrollment of all rural children (Shrestha et al. 1986).

Although girls' access may be positively affected by female teacher presence, in Ethiopia it was teaching experience, rather than presence of more female teachers, that was associated with girls' persistence in rural schools. With a low proportion of female teachers (13 percent), the researchers speculate that the absence of female teacher influence may be a function of the small number of women teachers (Abraha et al. 1991).

There is some evidence that women are more capable teachers. A teacher effectiveness study in Pakistan revealed that female-taught classes had higher average class scores and that the teachers were more likely to use effective teaching practices (Rugh, Malik, and Farooq 1991). But, another study (Jatoi and McGinn 1991)--also in Pakistan--found that, although male and female teachers differ in their teaching practices, female teachers do not use more effective teaching practices. The researchers conjecture that female teachers--who are more likely to come from higher social class backgrounds--may view teaching as an inferior occupation and, consequently, be less motivated to carry out effective practices.

A worldwide review looked at the relation between teacher gender and student achievement (Avalos and Haddad 1981). Based on student test scores, women were more effective teachers in India and Indonesia, while no significant relation was found in Uganda and Kenya. Female secondary school teachers were more satisfied with their careers, had a better attitude toward students, exhibited better mental health (India, Egypt, Thailand), had a better perception of open school climate (Lebanon and India), and used more participatory and problem-solving methods (Chile, Iraq).

But Comber and Keeves in their study of science achievement in four developing countries found that female teachers had a negative effect on students in three of the countries, perhaps reflecting the inequalities of women's training in this field (Stromquist 1989a).

Female teachers may also offer positive role models and engage in less discriminatory behavior toward girls (Finn, Dulberg, and Reis 1979). Biraimah (1987b) observed that female-taught elementary school classes were less austere, harsh, and threatening in Nigeria. But Yeoman (1985) found that male teachers were more supportive of students in Papua New Guinea. These different findings may be due to the specific cultural context.

In Botswana, researchers, speculating that female teachers might exhibit distinctly different teaching behavior, found no differences. But girls outperformed boys in Setswana--the only subject area where female teachers predominated--indicating a role model effect (Fuller and Snyder, in press). A Guatemalan study attributes improvement in girls' cognitive development test scores in part to role models provided by the women professionals working on the project (Safilios-Rothschild 1979).

Yet, a study of Togolese secondary schools revealed that more girls rejected teaching as a profession the longer they were in school. A resounding 44 percent at the primary level and 65 percent at the secondary level responded that they would not emulate their teacher. They rejected teaching as a credible and respected profession, and placed in question ability of teachers to act as role models (Biraimah 1987a). It appears the low status of women teachers within the school and educational hierarchy does not go unnoticed by the girls.[10]

Women teachers are also in short supply in the developing world. Only 33 percent of teachers at the primary level are women, with wide national and regional variations (USAID 1990c). In the Middle East, the number of female teachers has risen to about 40 percent (with the exception of Jordan and Kuwait) (El-Sanabary 1989). Pakistan averages about the same (not enough to staff girls' schools) (Jatoi and McGinn 1991). In Bangladesh, however, only 8.2 percent are women (Tilak 1989) and in Senegal only 23 percent (Kinsey et al. 1990). These figures mask urban-rural disparities: for example, gender parity of teachers in Lagos deteriorates to 15 percent female teacher percentage in Muslim and rural areas of Nigeria (Safilios-Rothschild 1979).

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[10]See Cortina's study on the subordination of women in the teaching profession in Mexico, 1986.

In addition to the devaluation of the profession and low salaries, which discourage males as well as females from teaching at the primary level, several other reasons contribute to the shortage of female teachers: lack of advancement opportunities and subordination of women within the profession; constraints on female mobility and dependence on family; the dual burden of family and professional responsibilities; and lack of housing. Bellew and King (1991) cite the low number of girls who qualify for admission to teacher training institutes, the location of teacher training institutes in urban areas, and the reluctance of predominantly urban female teacher trainees to accept posts in rural areas where the quality of life is lower. The result is low entry and high absenteeism and dropout rates from the teaching force.

In Pakistan, absenteeism due to reluctance to teach in rural areas was so high that many women teachers who were on the government payroll never set foot in their assigned rural school (Safilios-Rothschild 1979). In Bangladesh, the chronic absences of women teachers to attend to domestic chores, preferential treatment of their private tutorial students and constant petitioning to be posted to urban areas combined to prejudice village parents and school administrators against hiring local female teachers (Khan 1989).

In order to increase the number of women teachers, numerous strategies have been tried in various combinations with some success. These include incentive and active recruitment programs, training and hiring quotas, placement of teacher training institutes in rural areas, mobile training facilities, recruitment of local females, posting in home villages, block placement of female teachers, pretraining to satisfy training institute entry requirements, construction of residential facilities, etc. Yemen, Pakistan, Bangladesh, and Nepal stand out among countries that have attempted to enlarge the female teaching force.

In Yemen, the government has responded to the lack of qualified female teachers by instituting the *Voluntary National Service Program*. All women who complete secondary school must serve as primary school teachers in rural areas for one year; female university graduates are obligated to serve two years as secondary school teachers. Graduates are prepared with a 15-day intensive training course in basic pedagogy and classroom management. Although the program has increased the number of women in schools, its effect is uncertain. Many graduates do not teach, but fill school administrative posts, and school administrators complain of lack of commitment due to the short-term nature of their jobs (Cuadra et al. 1988).

A UNICEF-sponsored program, also in Yemen, *trains rural-based female students* who have completed primary or intermediate education to become primary school teachers. Female students are recommended by their headmasters. The two-year program bases itself in a region and busses trainees to training facilities daily. During training, students receive a small stipend; later, the trained graduates are placed in local schools and the program moves on to another region (Cuadra et al. 1988). Bellew and King (1991) report that only two girls out of 80 dropped out of the first two-year course.

Pakistan has tried a number of strategies. A World Bank-supported program recruited girls from rural villages and trained them at local secondary schools, using *programmed instructional materials* (Stromquist 1987). These Primary Teacher Certificate (PTC) units were successful in increasing the proportion of female teachers: 85 percent of the trainees were women, and the program accounted for 67 percent of all female teacher trainees in 1985-86. The per-trainee cost was also lower, at about 60-80 percent of the cost of conventional teacher training (Bellew and King 1991). Another program supported the *pre-teacher training* of girls in order to improve their chances of gaining admission to teacher training institutes (Miller 1990).

Because the lack of housing contributes to female teacher training shortages in rural Pakistan, *residences* for single female teachers and *hostels* for married teaching couples were constructed. Although the married teachers settled in readily, adapting the facilities to their needs, the single women only briefly occupied and quickly abandoned the housing. The practice of living alone or with other women was culturally unacceptable, with the teachers fearful for their safety and preferring to stay with their families (Warwick, Reimers, and McGinn 1989). Klitgaard et al. (1985) concluded that the cultural barriers were too great to entice Pakistani women to work in rural and coeducational schools, and that there were not enough job opportunities open to them in the regions and schools where they would work. Little emphasis was placed on the financial implications for the unmarried teachers: 45 percent of their salaries was deducted for lodging. This hefty amount must have exerted some influence on their decision (Warwick, Reimers, and McGinn 1989).

Moving beyond the classroom, Pakistan also experimented with the Mohalla (Home) School Project in Baldia, a large squatter settlement. Literate women (preferably secondary school graduates), observing purdah, held classes for girls in their homes in such areas as basic skills, the Koran, and home management. The women were chosen by the community and received government training. So girls would not be discouraged from attending, requirements for uniforms and shoes were suspended (APEID/UNESCO 1985a; Khan 1989). The project has expanded, reaching 16,000 girls, but there were reports that the literacy and pedagogy skills of the teachers were weak, that the project suffered from lack of teacher commitment, and that it was not suitable for rural areas (APEID/UNESCO 1985b).

With World Bank assistance, the government of Bangladesh has used *positive discrimination* in teacher training admissions and recruitment to redress the gender imbalance in the teaching force. Fifty percent of teacher training positions were reserved for females. This has recently been revised to 60 percent being reserved for women. Nonetheless, five years after program initiation there was only a disappointing two percent increase in total female enrollment (Stromquist 1989).

Bangladesh also earmarked for women 50 percent of the vacant teacher posts at all levels and 15 percent of educational administrative posts. The program had little success, however, with only 10 percent of teaching posts and 8 percent of administrative posts filled by women (World Bank 1990a). Another strategy about to be implemented or yet to be assessed is

improving the facilities (e.g., washing, latrine, recreational, and dormitory) provided for women at Teacher Training Institutes and at the National Academy for Primary Education (World Bank 1990a).

Nepal has, arguably, the most comprehensive program to raise the number of female teachers, and with good reason--only 8 percent of its primary school teachers are women. Since the late 1960s, a number of governmental and international aid programs have addressed the shortage of female teachers. One of the largest projects, based on an earlier UNICEF-designed project, is the Equal Access for Girls' Education Program, initiated in 1971. It recruits and trains women with secondary school certificates to be primary school teachers. The project targets historically disadvantaged groups, and cuts across ethnic, caste, and regional boundaries with quotas established for each group. The objective is not only to train women teachers, but also to place *local* women in the classroom.

The project has several dimensions:

- regionally based training campuses;
- hostel facilities for girls who cannot make a daily commute;
- provision of free tuition, monthly stipends, travel expenses, books and school supplies, tutorial assistance, and medical care;
- regional quotas to alleviate urban predominance;
- year-long professional program supplemented with practical and community development skills training;
- monitoring and refresher courses for graduated students; and
- a boarding program at hostels for girls who need to complete their secondary education in order to become eligible for teacher training.

(UNESCO/UNDP 1982; Silliman 1987; Cuadra et al. 1988; Khan 1989)

The project has succeeded in developing an infrastructure to promote girls' education and--by many reports--has served to increase not only the number of female teachers but also the number of girls in primary school. By 1986, Project-trained teachers represented 36 percent of the total female teaching force and 63 percent in the remote regions of the country. During the initial project period, the female teaching force increased from 3 percent in 1972 to 9.79 percent in 1979, but this figure has since fallen. Girls' enrollment ratios grew from 16 percent to 28 percent in 1986. However, the percentage of female teachers has not increased in proportion with incremental increases in school enrollment and in the number of

total teachers (Silliman 1987). Stromquist, using 1982 figures, observes that 800 female teachers produced by the project in more than 11 years is hardly adequate.

There have been problems. Well-intentioned quotas have gone unfilled because applicants lacked entry qualifications. Despite efforts to reach disadvantaged groups, upper caste and advantaged ethnic group students are disproportionately represented, with 50 percent in the advantaged classes. Although there is only a 4 percent dropout rate from the Project, it appears that the pass rate is much lower: between 1978-84, only 603 of 1024 students graduated. And surprisingly, graduates have experienced difficulty in finding employment. One-third of them were not teaching--against their preference. The reasons cited were no vacancies in local village schools and disinclination of headmasters to hire teachers with "inferior" training (Cuadra et al. 1988).

Other countries have engaged in similar efforts to recruit and train female teachers. In rural India, *community recruitment efforts* of female secondary school graduates to teach primary school resulted in reduced dropout rate, especially for girls (Chamie 1983). India has also tried *special allowances* to attract female teachers to rural areas and provided housing (Khan 1989). *Minimal entry qualifications* to teacher training institutes have been relaxed for women, and *supplementary training*--both in-service and preservice--as well as teaching materials have been provided to female teachers (UNESCO 1989b).

In Tanzania, an *assistant teacher* strategy was used. The number of teachers in isolated areas has been increased by recruiting and training local female primary school graduates who work under the supervision and with assistance from certified teachers (UNESCO 1989). Massive recruitment efforts of teachers in general, initiated in 1976, resulted five years later in increasing girls' enrollment from 74 percent of boys in 1974 to 95 percent of boys (Chamie 1983).

Papua New Guinea has established quotas for women teacher trainees, and places female teachers in blocks to reduce their isolation in rural areas (APEID/UNESCO 1985a). There are no data on the results.

On relatively slim evidence of a causal relationship, countries with low percentages of female teachers have undertaken ambitious programs to increase their ranks. Do these innovative programs produce credible and qualified teachers? Nothing was found in the literature linking specific recruitment programs and their trainees with classroom quality indicators--such as girls' achievement and attainment. We are left with the question: *Is the presence of a female teacher in the classroom enough to make girls learn?*

3. Helping Girls Learn: Inside the Classroom

When girls arrive at school, many suffer from numerous disadvantages: skeptical parents, disapproving community, heavy household choreload, and an intimidating environment for girls confronted--perhaps for the first time--with nonfamily member male classmates and

teachers. Classroom curricula, teacher behavior, and school organization often interact to make girls interlopers in the educational system--with the result that they drop out, underachieve, or are channeled into unproductive, stereotypical roles.

What goes on inside the classroom may program girls for academic failure by affecting their attainment and achievement. In a vicious cycle, girls' poor performance in school influences societal and parental perceptions of girls' ability and the quality, utility, and relevancy of female schooling (Safilios-Rothschild 1979; Khan 1989). These negative impressions, perpetuated by the school itself, keep other girls out of school. This section discusses methods used to equalize the distribution of knowledge in schools through the elimination of sex stereotypes in curricular materials and teacher behavior. It also looks at ways of making the curricula relevant and schools effective to meet parents' demands for quality education.

Stereotype Elimination. Despite the official uniform curriculum and open access policies of most developing countries, a "hidden agenda" (or informal or implemented curriculum) ensures that the distribution of knowledge with schools is unequal. In-school processes transmit messages that underscore the authority and superiority of males which--by lowering girls' aspirations and fostering negative attitudes towards school--can negatively affect girls' attainment, achievement, and ultimate life choices. Teachers, textbooks and materials, school organization, and course offerings implicitly communicate gender-differentiated roles and sex-stereotypical behaviors that reinforce girls' negative self-perceptions and limit their expectations.

Biraimah (1987), in her study of Nigerian elementary schools, finds that gender-typing begins early in the schooling process. *"When girls begin their educational careers, their achievement levels, classroom participation, and career expectations are quite similar to boys. With maturation and increased years of schooling, gender differences increase."*[11]

At the secondary school level, these differences are cemented. Togolese secondary schools transmit images of women as unproductive housewives and mothers--an image at odds with social and job market reality of Togo--through a variety of media: texts, teacher attitudes and classroom interactions, and the school authority structure (Biraimah 1984).

Duncan (1989) in Botswana, finds evidence of a consistent gender-typing of attitudes towards roles, occupations, and school subjects. For example, students consider science and math masculine subjects. Gender-role ideology depresses girls' achievement, and a negative association exists between femininity and achievement.

Teachers frequently believe that girls are less able and competent than boys. Papua New Guinea primary school teachers believed that educating girls was of less value, and consequently limited their interactions with girls (e.g., questions and eye contact), were less inclined to assign them positions of responsibility, and were less exacting in their school work

[11]There was a similar finding in Botswana. "At the primary level, boys and girls pass equally through the system with similar performance and achievement rates . . . At the junior secondary level, the situation changes dramatically" (USAID 1991).

(Yeoman 1985). Kamwendo (in Lewis et al. 1990) concluded that Malawian secondary school girls' performance in physical science suffered due to attitudinal factors: teachers have lower expectations for girls' performance.

A survey (Biraimah 1984) revealed that Togolese high school teachers (men and women) were unanimous in their view that their female students were neither intelligent nor successful, whereas male students possessed positive social and personal characteristics, goals, and abilities. A pattern of systematic discouragement and discrimination in teacher behavior was displayed toward girls. Yet the girls' responses were surprising. As they persisted in school, their desire to emulate their teachers decreased, but the majority--rejecting stereotypical female occupations--saw education as necessary and planned to join the workforce with high expectations of career success. "Girls do not necessarily learn what is taught if not reinforced by society," concludes the study (Biraimah 1984).

A few programs exist to modify teacher attitudes towards girls. Nigeria has held a *women's education awareness workshop* for ministry of education personnel and conducted "road-show" clinics for teachers (Eubi-Ajay 1990). Guatemala is developing *teacher awareness guides* that will "train teachers and supervisors in specific instructional strategies to increase retention and achievement of girls" (USAID/Guatemala 1990). Bangladesh proposes to do the same (World Bank 1990a).

Since few school administrators are female, girls seldom see positive female role models in the schools. Female teachers lack the support that may come from a woman school director or authority figure. In response, a UNDP program provides *management training* for less academically-qualified female headmistresses in the Middle East (El-Sanabary 1989). The results are unknown.

Numerous studies analyzing content of textbooks provide ample evidence that they transmit images of girls and women in traditional and non-egalitarian roles. Studies in countries around the world (Peru, Zambia, seven Arab nations, Brazil, Colombia, and India) have found girls and women characteristically depicted: in the home, in domestic and child care activities, in passive/emotional/weak/affectionate roles, and in secondary and subservient roles. Males are more likely to be portrayed in strong, positive, aggressive, active, and confident images. There is a clear differentiation between gender roles in professions, skills, and attitudes (see Stromquist for summary review, 1989a). Stromquist (1989a) observes that textbooks in developing countries are "remarkably consensual in their portrayal of women in obedient, submissive, and unselfish roles..." Despite these observations, however, this review, Lockheed and Vespoor (1990), and Bellew and King (1991) found no empirical evidence causally linking gender stereotypes in textbooks with low girls' attainment and achievement in school.

Nevertheless, massive programs in some countries have been undertaken to "neutralize" or eliminate gender stereotypes from school materials, although the effectiveness of this strategy--at least on the textbooks themselves--has been limited. China reportedly *revised its textbooks*

to advocate equality, but gender inequalities remain in portrayal of females in occupational, political, and scientific roles (Shu in Stromquist 1989a).

India's program to implement its sex equality policy had the National Board of Textbook Review develop guidelines for text book development at the state level in 1953, but a 1980 content analysis revealed that India's textbooks did not promote sex-role equality. Sampling showed that the books "sanction the dominance of men," depicting them more often, in favorable images, as subjects of biography and as leading figures in male-female interactions (Kalia 1980).

The BORN FREE Programme in the United States, created in 1976 to reduce gender stereotyping in educational institutions, may offer a prototype. It developed *multi-media training materials* for educators and parents at each educational level. Activities included *in-service training programs, clinics with student leaders and girls, and workshops with selected educational leaders* (Sundal-Hansen 1984). Evaluation results are reportedly positive.

UNESCO guides for educators on eliminating sex stereotypes in schools were prepared for the Arab countries, Asia, and the South Pacific, and the United States and Western Europe, but both the extent of implementation and the results are unknown (UNESCO 1984).

Curricular Relevancy. Critics of girls' education--from educators and economists to parents and community leaders--agree that the curricula taught in school is often irrelevant to girls' needs. There the consensus ends. The definition of "relevance" depends on the context and viewpoint. Some contend that there is not enough emphasis on mathematics and science needed to propel girls into business or the professions; others believe that education should be made more practical, with training in "feminine" skills of household production, child care, and nutrition in accordance with culturally-defined spheres of female activity. Set against the backdrop of a larger debate concerning primary school curricula in general, both sides may have merit. But in the case of girls, we see that sex stereotypes and gender-differentiated expectations influence not only the content (overt and covert) of girls' education, but also girls' performance levels and their access to various courses of study.

There is abundant research that shows that girls in general do less well in mathematics and science than boys, hold negative attitudes toward the subjects, and are less likely to pursue careers in these fields (Keeves 1973; Tittle 1986; DuPlessis 1991). Gender differentials are attributed to differences in orientation and academic channeling, instructional quality, and levels of aggressiveness and confidence that interact with math and science studies (Finn, Reis, and Dulberg 1979; Linn and Hyde 1989). Simply ensuring equal exposure to the same curricular offerings may not ensure equal learning opportunities for girls (Biraimah 1987b). Single-sex school studies (see above) have demonstrated that in the proper environment girls do succeed in these subjects. Structuring the learning environment so that they can is at issue.

A few countries have undertaken remedial measures to redress the gender imbalances in math and science. As differences in performance generally do not manifest themselves until the later years of primary school (although gender differences in expectations for success in mathematics have been found as early as grades one to three), most programs are aimed at secondary levels of education (Tittle 1986). They are worth mentioning here in our treatment of primary education because the seeds of failure are probably sown much earlier and educators should consider ameliorative action in the early years of schooling.

Ghana, like most countries around the world, suffers from a low participation rate of girls and women in science and mathematics studies and professions. The Ghana Education Service has initiated a number of activities to promote girls' participation in math and science education. A two-week *science clinic*, held annually for girls selected from secondary schools, provides girls an opportunity to meet professional women in science and engineering, learn about career opportunities, and visit educational institutions. Initial evaluations have been positive. Girls indicated a heightened interest in the fields and the roles they can play in them, countering gender stereotypes (Andam 1990).

A similar approach has been tried in Nigeria. The impact of science and math workshops has been buttressed with the added incentive of *scholarships* for girls in these subjects at the senior secondary level (Eubi-Ajay 1990). No evaluation data were available.

Sierra Leone has adapted the science curriculum to the needs of girls, by building on materials and processes relevant to their cultural and daily experience. The Basic Science Programme uses examples of *indigenous technology*--food processing and preservation, soap-making, charcoal production, etc.--familiar to rural girls to illustrate basic scientific principles and concepts, such as fermentation. The Programme, in operation since 1981, has found that most girls now do well in basic science and they are less alienated than when science is taught in more abstract terms (Amara 1987).

Within the classroom, Duplessis (1991) suggests--based on her experience in Botswana--that rather than following the practice of mixed-gender laboratory groups, girls profit from *all-girl grouping* to prevent the dominance of boys in handling of equipment and carrying out experiments. Also in Botswana at the secondary level, the structure of *course option schemes, timetabling*, and the availability of certain subjects has been modified to encourage greater gender equality. Female-oriented Human and Social Biology has been phased out in favor of Integrated Science for all students. Agricultural Science and Domestic Science are no longer offered at the same time, which allows the student to take both (Duncan 1989).

But, it is sometimes argued, that science and math education is only appropriate for those seeking professional careers and has little relevance to everyday life in the home and for the types of jobs available to the majority of women in developing countries (presented in Andam 1990). Around the world, efforts to popularize or "ruralize" primary education have frequently failed--Enseignement Moyen Pratique in Senegal and the First Reform agriculturally-based curriculum in Guinea are two examples. (Kinsey et al. 1990; Long 1990)

Such efforts to make education more relevant, by introducing farming or domestic skills have resulted in dual tracking in the educational system, with "relevant" schooling becoming synonymous with "inferior" schooling (Anderson 1988). And this perception causes girls and boys both to withdraw from school.

For girls, these programs may result in perpetuating sex roles and stereotypical views that limit female education and employment options. A World Bank report on Bangladesh (1990) notes that any discussion about curriculum reform to make content more relevant and ensure greater responsiveness to skill development needs is generally translated, in the case of girls, into domestic skills that are inadequate for entry into the wage market or for self-employment. Still such efforts persist. Eubi-Ajay (1990) advocates the provision of functional education for girls through the introduction into the primary school curricula of skills "such as sewing, cooking, baking, typing, knitting, crocheting, tatting, tie-dying, and batiking..."

For girls who wish to obtain a vocational or technical education after primary school, the options are limited. Female enrollment in these programs is small, and of those who are enrolled, the majority are in domestic sciences (e.g., sewing, child care, hairdressing) or low status clerical programs with low employment opportunities (El-Sanabary 1989). Bangladeshi educators, for example, have expressed the conviction that society prefers to spend its vocational education dollars on males and that expanding vocational training for females is "costly, problematic, and creates friction" in society (World Bank 1990a). In Kenya, women have been legally excluded from public technical and vocational schools (Smock 1981).

One successful program does exist for girls. Morocco's Industrial and Commercial Job Training Program recruited ninth grade girls for training in drafting, electricity, and electronics. Attributes of the program included: active information campaigns encouraging girls to apply; aggressive recruitment of girls; competition with men on an equal basis; preferential admissions for a few programs; apprenticeships and informal job placement strategy; and counseling services. After five years of operation, recruitment targets had been exceeded, dropout rates for girls were the same as for boys, and 70 percent of the girls had found jobs at salaries comparable to what high school graduates earned in the public sector (USAID 1983).

In summary, given that the value of a girls' education is often measured by her parents in terms of increased productivity and earning capacity, curricula that do not enhance future employment possibilities will do girls a disservice (Kelly 1987). While primary school curricula must be relevant in the immediate context, they should concurrently aim at the transformation of society so that women are not "educated" into traditional and limiting roles (Stromquist 1989a).

Effective Schools. School quality matters to parents; and there is evidence that parental perceptions of school quality effects girls' educational participation to a greater degree than boys'.

Girls' enrollment and persistence depends, more than boys, on the quality and content of education offered to girls (Kelly 1987). Many researchers have remarked on the relatively low repetition rates of girls, compared to their dropout rates, and conclude that girls are given fewer chances for failure (UNESCO in Stromquist 1989a; Kinsey et al. 1990). In the Ivory Coast, female low achievers leave school in larger proportions than do boys in the lower grades, indicating that they must perform better than boys to stay in school (Assie-Lumumba in Stromquist 1989a).

As quality improves, parents are more willing to invest in their daughters' education (Herz and Khandker 1991). In Tunisia, girls' enrollment dropped when the quality of schools provided to girls was inferior to that of boys (Jones in Kelly and Elliott 1982). In his study of user fees, Jimenez (1987) points to the elasticity of parental demand in relation to school quality; and Jimenez and Cochrane (in Jimenez 1987) find the demand for girls' education more sensitive to quality.

Not only are access and attainment affected by school quality, but achievement is affected as well. Heyneman and Loxley's (1983) review of 29 countries and Fuller's (1987) review of 60 countries found that school characteristics and inputs matter most to educational achievement in the developing world. In developing the concept of the "effective school," Lockheed and Verspoor (1990) identify key characteristics: orderly environment, academic emphasis, instructional leadership, and a curriculum implemented with textbooks and teacher guides.

But *what makes schools effective for girls?* We found little research on the differential impacts of material and nonmaterial inputs to schools. Existing studies point to *textbooks*, and *school organization and completeness*. One experiment indicates that *competency-based curricula* holds promise for girls. The *qualitative aspects of school curricula* may also positively affect girls' participation.

Investment in additional inputs--textbooks and instructional materials--often boosts educational outcomes in impoverished schools and for certain groups of children. Textbooks at the primary level contributed to raising enrollment and attainment for girls in Peru. If the primary school provides a free textbook, girls are 1.3 times more likely to go to school, while this exhibits no effect on boys' enrollment (King and Bellew 1989).

The same study found that textbooks consistently had a greater impact on girls' years of schooling than boys'. Girls who had a textbook for their own use in primary school attained more than 0.5 years of schooling more than girls who did not. The researchers speculate that "Perhaps because there was less interest in the education of girls, the quality of the learning process was more important in determining how many years of schooling girls had." The provision of school furniture, on the other hand, had a greater positive effect on boys, increasing their level of schooling by 0.4 years, while the 0.2 year increase for girls' was not statistically significant (King and Bellew 1989; Herz and Khandker 1991).

In Liberia, both girls and boys in textbook-enhanced classrooms achieved higher test scores with a lesser degree of gender disparity (although average scores were less than with programmed learning materials) (Boothroyd and Chapman 1987).

School organization may also define effective schooling for girls. In Guinea, primary schools in rural areas with high female enrollment appeared to be well-organized and managed, and staffed with enthusiastic teachers. This finding suggests that nonmaterial inputs may be more relevant measures of school quality (Long 1990).

Johnstone, DeTray, Thein, and others have indicated that school completeness, offering the opportunity to complete the primary cycle, positively affects girls' enrollment. In Peru, availability of a complete primary school increases the probability of both boys and girls enrolling by 28 percent. The number of teachers, school size, and school places have a larger positive effect on girls' enrollment than boys, but a lesser effect on girls' attainment (King and Bellew 1989). A study in Ethiopia (Abraha et al. 1991) showed that girls attending larger, more formalized schools persist longer, but in rural areas girls in larger schools have a somewhat lower pass rate than girls attending small schools, possibly because "the range of competence may be greater in larger rural schools..."

In Nepal, however, school quality factors--such as student:teacher ratio, expenditure per student, school facilities, etc.--have virtually the same effect on girls and boys (Shrestha et al. 1986). Household factors, such as income level and number of child earners, are found to be more predictive of girls' educational participation, as girls are expected to perform more household duties than boys.

The Primary Education Curriculum Renewal Project in India has focussed on developing a competency-based curriculum for primary school that is directed exclusively toward the acquisition of certain essential competencies. A "minimum learning continuum" which establishes performence criteria, provides guidance to producers of instructional materials and has been used in the revision of primary school syllabi. Project schools exhibited more student interest in activities, a more localized teaching-learning process, and more pronounced student-teacher interaction. Over a five-year period, there was a clear trend toward higher attendance and lower dropout rates for both boys and girls, but the enrollment increases for girls were greater (Mellbring, Osterling, and Persson 1983).

The experience of Colombia's Escuela Nueva indicates that the qualitative aspects of school curricula may be important. Although the program's learning objective are consistent with the national curriculum, it emphasizes learning activities that are relevant to the lives of rural children and their communities in order to demonstrate the application of academic skills to the challenges of daily life. The local environment is used as a learning tool. For example, children write down and compare local recipes. They prepare a community map that records households and family names. They are encouraged to write letters about local problems and use their newly acquired skills in community development projects. Consequently, girls and

boys acquire a sense of purpose about their education and both their academic self concept, social and civic attitudes and self esteem are heightened (Schiefelbein 1991).

There has been some experimentation with ungraded schools and automatic promotion in India, but no data on the educational outcomes for girls are available (UNESCO Regional Office for Education in Asia and the Pacific 1984).

CHAPTER III

The Formal System: Demand-side Approaches

Many parents are not convinced of the benefits of education for their daughters. Both mothers and fathers may have low aspirations for their girls, objecting to education on multiple grounds. Often, parents do not consider education as relevant to the girl's role of wife and mother (Yeoman 1985): only boys need literacy for employment and to "be somebody" (Lembert in Stromquist 1989a). The lack of remunerative labor market opportunities open to women promises low economic return on educational investment in girls and, with marriage, any resultant revenues may accrue to the husband's family. Education makes girls unfit for traditional roles in society, causing them to exhibit less respect for male authority and to be unwilling to work as hard: they become "big-headed and good for nothing" (Csapo 1981; Yeoman 1985; Kinsey et al. 1990). Girls also are needed at home for domestic chores and sibling care. In addition, sending girls to school is risky: the "moral laxity" of the school environment could result in pregnancy. The girl "might become useless," and "all your money is lost" (Nudugbueze in Csapo 1981).

The bottom line is that education is not perceived as increasing girls' productivity or value--either economic or social. Economic, cultural, and religious reasons combine to depress demand so that girls are either never enrolled in school or withdrawn at earlier stages than boys. The approach of both policies and programs to increase demand is essentially an economic one--aimed at raising the private benefits (economic as well as noneconomic or nonmarket) and reducing the costs so that the private returns on girls' education are greater. This chapter is organized into two major sections, Policy Responses and Program Responses, which address these approaches.

A. Policy Responses

The policies discussed below--free and fee education--directly affect household financial well-being. While both have had and may have beneficial effects on educational development, we see that they either do not go far enough, have perverse or unanticipated effects, or promise negative consequences for girls' access and attainment.

1. Free Education: Too Costly for Girls

Along with the introduction of universal and compulsory primary education in the 1960s and 70s, many developing countries eliminated school tuition charges at the primary level. This had a tremendous positive impact on girls' educational participation.

"When governments provide free education in abundant supply, girls tend to go to school more than when schools are scarce and charge fees," comments Kelly (1987). Free education in Tunisia, Indonesia, Sri Lanka, Ghana, Zimbabwe, and Malawi resulted in increased

enrollments for girls. The Kenyan policy of free universal education is attributed with 40 to 50 percent gains in girls' primary school enrollment, especially between 1973-79 (Kirmani 1990). When India abolished fees for primary education in the early 1950s, it doubled enrollment ratios for boys and girls (although girls account for less than 40 percent of total enrollments) (UNESCO Regional Office of Education in Asia and the Pacific 1985; Khan 1989). Tilak concludes that free education "pays rich dividends" in terms of girls' enrollments.

But "free" education is not without cost to its users. School-associated expenses, in the form of recreational and activity fees, exam fees, uniforms, supplies and materials, transportation, lunches, and gifts to teachers, etc. result in the exclusion of girls and poor children from the educational system (Anderson 1988; Easton and Fass 1989; Kinsey et al. 1990).

The same constraint to educational participation is echoed around the world. The World Bank (1990) notes that, in Bangladesh, free primary education is not enough to bring girls to school: "...the overwhelming impact of poverty still means that the poor are unable to find the money to purchase slates, chalk, paper, pencils, food, and clothes for the child." In Malaysia, it is estimated that out-of-pocket (i.e., not subsidized) costs for public education for the poorest quintile is 18 percent of average annual income (Jimenez 1987).

In Guinea, the costs of school construction, school supplies and materials, housing for the director, donations for teachers' sustenance, and private tutoring to compensate for poor quality education are covered by parents. "These costs make schooling virtually unaffordable for the poorest parents and forces many parents to prioritize who is sent to school" (Long 1990). Girls are not likely to take precedence due to a variety of cultural, religious, and economic reasons.

While Kirmani (1990) reasons that in Kenya "people have to 'earn' the free education" by building the local school, Nkinyangi (1982) points out that this requirement and other hidden costs of free education have actually increased the disparity between rich and poor communities, to the detriment of girls.

In an analysis of Kenyan educational policy, Nkinyangi found that the true barrier to enrollment and cause of premature withdrawal was cost--not low parental aspirations as often claimed. Initially, the abolition of school fees for primary school resulted in disproportionately increasing girls' enrollment in primary school (i.e., 161 percent compared to 145 percent for boys), reflecting a pent-up demand for girls' education sensitive to cost levels. However, in order to make up for lost government revenues, schools began to levy fees to cover costs. In poorer areas where parents could not pay school maintenance fees, school quality deteriorated. Because of the greater elasticity of the demand for girls' education, as household incomes were strained by these new charges, girls were less likely to go to school (1982).

To alleviate the burden on poor parents for school maintenance expenses and dues payment to the parent-student association, a community in Haute Guinee in Guinea has instituted a tax break policy for enrolling their children in school. This has been only a partial success: parents will usually enroll both daughters and sons during the tax season (January to March) and then withdraw their children in April to work the fields (Long 1990).

2. User Fees: Pricing Girls Out of the Educational Market

Adverse macroeconomic conditions and the growing number and proportion of school-aged children in the developing world have combined to strain the education budgets of many countries, resulting in the deterioration of school quality and an insufficiency of school places. Faced with slowing educational development, educational planners have attempted to identify alternative sources of finance for education and mobilize resources outside the public sector. Two strategies are often mentioned: user fees and privatization of schooling.

The World Bank (1986) suggests that cost recovery schemes (i.e., user fees) and fee-based private education would have small negative impact on school enrollments, and could mobilize untapped community and family resources for education. Primarily focussing on secondary and tertiary education, they further argue that these strategies could equalize distribution of schooling, as poor children are less able to compete for rationed scarce school places. Admission based on strict financial criteria could eliminate other more pernicious selection biases (World Bank 1986; also see World Development Report 1987).

Jimenez (1987), advocating user charges for primary education under certain circumstances, argues that such charges could generate revenues to subsidize expanded and improved schooling. As there is little evidence in low-income countries of excess demand for primary education due to artificially high levels of subsidy, he contends that the rather low demand is due to insufficient supply. Improvements in quality, therefore, would increase parents' willingness to pay for their children's education. His estimation of price and demand elasticities suggest that average rate of enrollment might not fall if fees increase, but he does concede the possibility of differential impact on different groups of students.

Tan, Lee, and Mingat (1984) are less circumspect: their estimated demand function predicts a small effect on primary and secondary enrollments in Malawi, but a larger one for low-income families. However, the suggested ameliorative strategies--such as scholarships and fee reduction--aimed at low-income groups do not take adequate account of regional differences in demand and ability to pay, children not in school, or the inherent problems of administering these programs.

Other researchers point to the greater internal efficiency of fee-based private schools in terms of higher student achievement and lower per-student costs (Jimenez 1987; Jimenez, Lockheed, and Wattanawaha 1988; Schiefelbein 1990). Their controls for student background, socio-economic status, etc. and for unremunerated religious order staff, however, are not convincing. Most studies were conducted in better-off or middle-income countries (Thailand,

Chile, Latin America). In low-income countries--e.g., Kenya, Tanzania, and Haiti--private schools are found to do worse (Armitage and Sabot 1985; IEES 1986a).

What, then, is the effect of user fees and fee-based private education on girls? There is little doubt that girls are usually vulnerable to the negative consequences of these policies. Smock (1981) states unequivocally that increasing private costs of education, through privatization or school fees, reduces girls' enrollment. The cost of schooling was most often cited for failure to send girls to school in Egypt (Robinson, Makary, and Rugh 1987). Household surveys in Indonesia indicate that poor economic conditions were most influential in keeping girls out of school (Chernichovsky and Meesook in Tilak 1989). While parental land ownership was a decisive determinant of girls' educational attainment in rural Thailand, it was not for boys (Cochrane and Jamison 1982). And in Bangladesh and Guatemala, parents of girls participating in scholarship programs cite lack of finances as inhibiting their daughters' education prior to their enrollment in that program (Thein, Kabir, and Islam 1988; Clay, per. com. 1991a).

Reliance on girls for domestic work (Chamie 1983), illness in the family (Stromquist 1989b), changes in family circumstances (Yeoman 1985), marriage, or disability of other females in family (Caldwell, Reddy, and Caldwell 1985) are some of the reasons girls are more likely to be withdrawn from school. All are directly linked to the family's economic status, and parents are more likely to sacrifice their daughters' education.

Female enrollment increases with income per adult (Schultz 1989a). In the Ivory Coast, increasing income has a dramatic, although diminishing, effect on reducing the non-enrollment of girls at most ranges of income (Appleton, Collier, and Horsnell 1990). It may be that the inverse is true. While household income has a high correlation with daughters' education, it has less with sons': economic hardships are less likely to influence boys' schooling (Stromquist 1989a; Safilios-Rothschild 1979). In Kenya, when parents cannot pay fees, they keep their girls at home (although no significant gender differences in achievement were found where fees were instituted) (Nkinyangi 1982). In Benin, rural parents are willing to pay primary and secondary school fees for boys, but are much less willing to do so for girls (Houeto in Stromquist 1989a).

The more parents are compelled to set financial priorities, the more boys will be educated at the expense of girls (Stromquist 1989a). Assumption of a "unified family welfare function" and of a lack of discrimination between children may be fallacious in calculating favorable results of educational expansion for girls (Ashby 1985). In Nepal, the more daughters in a family, the more education was desired for sons (Jamison and Lockheed 1987). However, in Botswana, fewer girls dropped out for fee reasons (10 percent) than boys (21 percent) (USAID 1991).

Competing demands on and the opportunity costs of girls' time may make the introduction of fee-based schooling even more costly for the household (Kinsey et al. 1990). Cultural practices may also reduce returns on educational investment in girls: dowry payments

frequently increase with education, because a comparably educated husband must be found and the pool of eligible suitors reduced (Mellbring, Österling, and Persson 1983); and bridewealth--important in many groups to poor families--encourages early marriage to improve family finances but also results in the loss of the net benefits of daughters' education (Csapo 1981).[12]

Further, school fees require access to cash that many families may not have, throwing yet another obstacle in the paths of parents seeking education for their daughters (Lewis et al. 1990). In interviews with parents and guardians in Malawi, many mentioned school fees as a barrier to their daughters' persistence through primary schools (although cash appears to be available for "more legitimate social practices, like initiation") (Fuller, internal memorandum, 1991).

But in her analysis of Pakistan's educational reforms, Smock (1981) emphasizes that the elimination of school fees will not necessarily stimulate girls' enrollment. Reduction of school costs for parents in Pakistan resulted in increased gender disparity in enrollments, with only a 2 percentage point increase for girls compared with a 11-point increase for boys.

Free education for all children, especially at higher levels of education, may no longer be feasible in today's economic climate. But on balance, although the empirical evidence is neither direct nor abundant, it seems that the introduction of school fees--at least for poorer families--may be the ultimate barrier that keeps girls undereducated.

B. Program Responses

Income elasticity, based on the perceived cost and benefits of education, is much greater for girls than boys (DeTray 1988). In other words, the costs of girls education are deemed to be greater and the benefits less than boys, so that girls' educational participation is more sensitive to changes in income status. *What can be done to offset the social and financial burdens that educating daughters places on families?* The several programs and projects discussed below address the direct costs of schooling, the opportunity costs, and the attitudinal changes in parents, the community, and educators needed to appreciate schooling for girls.

1. Incentives and Subsidies: Reducing the Costs

The direct costs of schooling--tuition and associated expenses--do affect girls' participation in education (see above). If parents feel that they cannot afford to educate their daughters, they will not. In many countries the direct cost of schooling for girls is, in fact, higher than for boys: in Indonesia, direct expenses for girls at the primary level is nearly 44 percent higher and at the intermediate level 26 percent higher (Chernichovsky and Meesook in Tilak 1989).

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[12] Conversely, education has been found to increase marriageability among certain groups and classes in India, Bangladesh, and Pakistan (USAID 1988; Khan 1989).

Partisans of girls' education and advocates of fee-based education alike point to the efficacy of financial incentives and subsidies for disadvantaged children to reduce the direct costs of education. Numerous formulae exist to bolster socio-economic conditions of families to permit them to send their daughters to school. Children, not necessarily just girls, have been provided with scholarships, uniforms, textbooks and school supplies, and school meals.

The Indian state of Kerala provides 90 percent of primary school children with texts, uniforms, and meals and shows a 6 percent dropout rate compared with a 50 percent attrition rate where such programs do not exist (UNESCO Regional Office for Education and the Pacific 1984). A large-scale textbook program and loan scheme, supplementary feeding programs, and scholarships for the needy in Malaysia are credited with boosting women's enrollment (UNESCO Regional Office for Education in Asia and the Pacific 1984).

The preponderance of incentive and subsidy programs for girls are found in Asia--India, Bangladesh, Nepal, and China--with exceptions for Guatemala and Malawi. They are discussed below.

Scholarships. Scholarship programs are often comprehensive efforts that cover the costs of girls' tuition--when education in upper primary and secondary school is not free--in addition to providing textbooks, uniforms, meals, medical expenses, educational guidance, and boarding facilities in various combinations.

The governments of India, Nepal, China, and Bangladesh all provide scholarship programs for girls. To promote education for girls and reduce wastage, India's program targets lower socio-economic groups, including scheduled castes and tribes. In 1978, 13 percent (62,438) of the primary students and 16 percent (18,262) of the secondary students received some form of scholarship. The state of Tripura offered scholarships to 100 percent of its primary students (UNESCO Regional Office for Education in Asia and the Pacific 1984). In some states, school fees for girls are waived at the junior secondary or preparatory level, and two states offer girls education free of fees through university (APEID/UNESCO 1985a).

In Nepal, free education is extended to girls up to the secondary level, and scholarships are awarded to girls from remote areas to attend regional secondary schools. The government plans to institute a similar program at the primary level. Experiments in poor regions have shown that small cash awards to girls who attended primary school did not increase enrollments but did increase persistence of those already in school (APEID/UNESCO 1985a; Cuadra et al. 1988; Miller 1990).

In China, a package of boarding school scholarships, books, stationery, medical care, educational guidance, and parental education is available to girls in rural and remote areas (Stromquist 1989b). The government in Bangladesh reserves 50 percent of its secondary school scholarships for girls (Anderson 1988).

Few data are available on the results of these programs, but reviewers appear to agree that the programs suffer from limited coverage, rather than inappropriate design. Fortunately, two programs funded by USAID--the Bangladesh Female Scholarship and the Guatemala Association for Family Life Education Project--and another in Malawi have been documented and provide insight into the impacts and problems of girls' scholarship programs.

The Bangladesh Female Education Scholarship Program (FESP) was designed to encourage girls to enter and persist in junior secondary school (grades 6-10) in order to lower fertility by delaying marriage and increasing contraceptive use. Initiated in 1982 in a single village as a pilot project, the program by 1988 reached over 20,000 girls in 93 schools in 6 upazilas (subdistricts). In 1990, the World Bank proposed to support and extend the program. Three evaluations (Ather 1984; Martin, Flanagan, and Klenicki 1985; Thein, Kabir, and Islam 1988) have shown overwhelmingly positive results and provide the information presented below.

The FESP approach provides girls with a monthly stipend to attend a local secondary school. Eligibility is based on family income and residence in the project zone, and candidate selection involves school directors, teachers, family planning officials, and community leaders. The stipend covers about one half of the total annual education costs. The money is placed into a bank account in the girl's name, who is accompanied to the bank by a teacher when tuition is due. The girl is required to attend school regularly, which means missing no more than 25 percent of classes.

The latest evaluation results (1988) reveal multi-dimensional impacts:

- The percentage increase of female school enrollment in project zones doubled the national average, from 7.9 percent to 14 percent; the dropout rate was reduced from 14.7 percent to 3.5 percent.

- The same percentage results were seen at the primary school level for girls' enrollment, due to a "spin-off" effect--more girls now have the hope of receiving a scholarship to continue their schooling.

- The age of marriage has been increased for scholarship students, from 12-15 years to 18-19 years of age; the fertility rate has been reduced at least in the short-term by these later marriages; and contraceptive use is prevalent.

- The status of girls has increased within the community and family. Education has transformed girls from "liabilities" to "assets" with increased employment opportunities, better chances of marriage, and reduced dowry payments. Says one parent:

  "I could not give education to my elder daughter who was married in class 3. I had to pay dowry. Thanks to the scholarship, my younger daughter passed the SSC examination and fortunately got a full-time job on completion of secondary

education. I received many offers of marriage and could pick and choose. None demanded dowry. Some even wanted to bear my expenses. I could marry my daughter to a household which is socially superior to mine. She visits me more often than my elder daughter and brings me presents. Evidently my younger daughter is happier than my elder daughter to whom I could not give proper education." (Thein, Kabir, and Islam 1988, p. 24)

- The schools, too, have benefitted: with guaranteed tuition payments they purchase equipment and make improvements, hire better qualified teachers, and enjoy higher teacher attendance.

One of the significant problems that the project encountered stemmed from the decision to lower the eligibility ceiling for family income, which previously had included all girls in the project areas. The new "poverty line" proved to be too low: girls from families earning more than the specified level were still precluded from attending school for financial reasons. Local elites withdrew their support of the program when the revised financial guidelines excluded their daughters, and selection committees were unable to fill all the allotted places with "qualified" candidates, causing per-student costs to rise.

Yet community support remains strong. The management costs of the program are relatively low, and at about $44 per girl per year, the costs are less than some contraceptive options (MacIntyre 1990). The government of Bangladesh is considering eliminating fees for girls in junior secondary school and may provide scholarships at the senior level (World Bank 1990).

The Guatemala Association for Family Life Education Project (AGES) assists Indian girls, seven to 15 years old, in attending primary school. Similar to the Bangladesh project, it aims to reduce fertility. Although tuition is free for primary school in Guatemala, the cost of school supplies and lost labor opportunities keeps girls' enrollment low. A small stipend--about $4 per month--is allotted to families for each daughter in school who does not become pregnant, with the money to be used at the family's discretion.[13] Scholarships are not revoked for failure to pass, but girls must attend classes 75 percent of the time. Girls are provided with tutoring and encouraged to continue in school. Semi-monthly visits by social workers, monthly parent training sessions, and annual participatory evaluation meetings ground the program firmly in the community.

Since 1987, AGES has grown to include 13 communities, 22 schools, and over 1,500 girls. During the three-year period, only five girls have dropped out of the program. Other communities have requested the program, and with AID funding the project will be extended (Knutsen 1990; USAID/Guatemala 1990; Clay, S., per. com. 1991a).

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[13] Average wage is $2/day.

In Malawi, UNDP supports a pilot scholarship program aimed at encouraging increased attainment and achievement for girls and boys. Two pupils in every primary school in the country are awarded scholarships, with a 3:1 preference for girls. Selection is based on academic merit rather than need, and encourages performance rather than enrollment. An October 1990 evaluation was scheduled, but data were unavailable for this review (Lewis et al. 1990).

Uniforms and Textbooks. The lack of school uniforms and textbooks discourages girls from attending school and impedes their performance. In most countries, these two items must be funded by the household, which is often hard-pressed to purchase these relatively costly goods.

Uniforms are often required by schools; if not required, de facto expectations discomfit families who cannot afford them. In Bangladesh, the World Bank-IDA Primary Education Project provided uniforms for nearly .5 million primary school-aged girls from low-income groups. Initial reports indicated that female enrollment increased and attrition for girls aged 7-8 decreased. More extensive evaluation of the intervention was prevented, however, by the early cancellation of the project. Two years after initiation, the uniform project was halted because of corruption and leakages in the system: fewer than a third of the girls had actually received the uniforms--uniforms were diverted to ineligible students, sold on the side, etc. (World Bank 1990a).

Textbooks are in short supply in developing countries and are expensive. Although education is not free in Nepal, the government provides textbooks free of charge through grade 3 for all children and extends this through grade 5 for girls (APEID/UNESCO 1985a; Cuadra et al. 1988).

As previously mentioned, a free textbook program in Peru increased the probability of girls' enrollment (King and Bellew 1989).

School Meals. Many children in low-income countries go to school hungry, are undernourished, or suffer from malnutrition. There is evidence that malnutrition is more prevalent among girls than boys: in India, the Philippines, and Guatemala girls were more often malnourished, suffered from Kwashiorkor, and received less food than boys (Safilios-Rothschild 1979). In Bangladesh, girls suffer from anemia and are undernourished (World Bank 1990). A growing body of research links malnutrition and its effects on children with impeded cognitive development and ability to learn (Safilios-Rothschild 1979). In Guatemala, girls' mental development scores improved when they were given a protein supplement (Safilios-Rothschild 1979).

One solution has been to offer meals or institute feeding programs in primary schools. The reasoning is that (1) schoolfeeding programs can constitute an income transfer to offset student costs of attending school; and (2) improved nutrition and elimination of hunger can raise the ability of the child to benefit from instruction. The measurable indicators are

increased enrollment and attendance, and improved cognitive development and academic performance. Although numerous studies have been conducted in developing countries to test the impact of school feeding programs on children, the results are insufficient to determine their effectiveness in attracting girls and boys to school, helping them stay there, or improving their performance.

In Tamil Nadu in India, for example, a midday meal was not sufficient to keep girls in school. A 64 percent dropout rate was recorded (UNESCO Regional Office for Education in Asia and the Pacific 1984). A school lunch program in Peru had no effect on girls' enrollment and a low correlation with attainment (King and Bellew 1989). However, in the Dominican Republic the discontinuation of a primary school feeding program was associated with a 19 percent drop in boys' enrollment and a 43 percent drop in girls' enrollment (Gall et al. in Levinger 1986). In India, two different studies found that schools offering feeding programs experienced substantially higher attendance at the first grade level (Roy and Rath, and CARE in Levinger 1986). In Haiti, participation in school feeding programs correlated strongly with students who enjoyed better home environments, which both confounds efforts to isolate the effect on school meals and to reach the poorest children (Cotten in Levinger 1986). Another study in Haiti found school feeding programs to be a critical factor in parental calculations of school enrollment and selection (Easton and Fass 1989).

Studies on the effects of improved nutrition on performance are equally inconclusive. In Jamaica, a school breakfast program improved mathematics achievement, attendance and retention (Pollitt in Bellew and King 1991). In Haiti, primary school children who had no breakfast performed less well academically, but their was no significant difference on IQ tests between children participating in school feeding programs and those who were not (Cotten in Levinger 1986). Similar results were found in India and Lesotho, although the school feeding program provided the only source of protein in the children's diet (Roy and Rath, and Karo in Levinger 1986).

That parents recognize the need for improved nutrition is in little doubt. In Haiti, rural parents cite the increased nutritional needs of their school-going children as a major impediment to school enrollment and attendance[14] (Tietjen and Fass in progress). In Bangladesh and India parents have expressed the desire for midday meals at school for their daughters (Khan 1989). The apparent contradictions between children's low nutritional levels and the desire of parents to obtain supplementary nourishment for their children, on one hand, and the less-than-positive results of the impact of experimental school feeding programs with conventional educational outcomes, on the other hand, indicates the need for reconsideration of how feeding programs are both delivered and assessed.[15] Rather than reject the concept of school meals, what must be questioned instead is the formula for providing these meals,

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[14]Despite this, parents in rural Haiti express distaste for the school feeding programs, citing additional fees or their children's dislike of the food.

[15]For a discussion of the methodological problems of school feeding program assessment, see Levinger 1986.

the means of assessing their impact, and the adequacy of this strategy in whether they are sufficient to overcome both the in-school and at-home disadvantages that many girls face.

School Improvement Fund. The new General Education Project in Bangladesh calls for a slightly different approach that will allow the schools to define their needs in these areas. A school improvement fund program, administered through NGOs, will be created to "help and encourage schools to make themselves more attractive to girls through a variety of measures such as school uniforms, additional reading materials, school feeding, etc." (World Bank 1990a).

2. *Time Is Money: Addressing the Opportunity Costs of Girls' Labor*

Out-of-pocket or direct costs are not the only expenses parents must consider in their decision to send their daughters to school. Opportunity costs or the costs of productivity lost to the household in terms of girls' labor while she attends school is an important factor, one often linked to low participation of girls.

The data are striking: in many developing countries around the world the contributions of girls to household productivity far exceed boys'. Time-budget studies in rural areas of Yemen, Bangladesh, Botswana, Burkino Faso, Nepal, and Java found that girls have greater and earlier responsibilities for production both within and outside the home, and that much of their time is devoted to household tasks--such as water-carrying, fuel collection and food processing--and child care (Safilios-Rothschild 1979; Jones 1980; McSweeney and Freedman 1980; Charnie 1983; Ashby 1985; Shrestha et al. 1986; Khan 1989; Tilak 1989). Girls assist in their mothers' trading activities: in rural Nigeria, girls represent their mothers, whose activities are constrained by female seclusion, at local markets (Csapo 1981).

Even exceptions prove the rule that opportunity costs are an important determinant in schooling decisions. In Latin America and some countries, like Botswana and Lesotho, where labor opportunities for boys are high, boys will not attend or will be withdrawn from school. In fact, this seems to be the only reason why girls' educational participation infrequently surpasses boys'. Child labor is critical to the survival of many poor families.

Two obvious approaches to reduce the opportunity costs of girls' education are: 1) to provide the means to reduce the need for their labor; and 2) to coordinate their production responsibilities with the school structure and schedule.

Labor-saving Technologies. In Burkina Faso, the Equal Access of Women and Girls Education Project introduced mechanical mills, water wells, and carts aimed at reducing the workload of women and, by extension, their daughters. The idea was that time savings in processing and portage tasks would liberate the women to participate in educational programs and increase their willingness to allow their daughters to attend school.

The technologies did, indeed, succeed in reducing the time spent on these tasks, but the assumption that the "freed time" would be applied to school attendance was unfounded. Instead, the found time savings were devoted to other domestic activities that improved family welfare (e.g., cleaner clothes, cooked meals), but did not liberate girls from household labor. There was no significant difference between girls' school attendance in project villages and control villages, giving credence to the adage that a woman's (and girl's) work is never done (McSweeney and Freedman 1980; Kelly and Elliott 1982).

On a more positive note, Kinsey et al. (1990) report that a similar program in Senegal, which provides mills and wells for village women, has seen increased attendance at girls' and women's literacy classes.

Although we uncovered no policy of articulated discrimination against girls at the primary school level, the school structure and schedule militates against girls' educational participation. Increased attention is being paid to tailoring the educational process to address the realities of girls' lives. In a previous section, *flexible scheduling and sequencing* of the formal school program was shown to have positive effects on girls' schooling, e.g., Escuela Nueva in Colombia. This will be further examined in a later section.

Preschools and Creches. Another significant accommodation of girls' household duties is the provision of preschool, day care, or creche facilities for younger siblings, whose care is often entrusted to girls little older than their charges. Preschools are a growing phenomenon in the developing world, and China has expanded its preschool education program, a move that simultaneously frees girls from child care during school hours and prepares younger children for later schooling (Lockheed and Verspoor 1990). In Guinea, parents and teachers state that girls who attend preschool ("ecole maternelle") are more likely to persist longer in primary school (Long, pers. com. 1991). In Nepal, 30 women's education centers provide day care for children aged 3 to 6 years with similar results (USAID 1985). Bellew and King (1991) report that a community child care program--Hogares de Bienestar Infantil--has relieved many girls of child care responsibilities to attend school. The centers are staffed by local mothers, who are trained in child care, nutrition, etc., and receive wages plus assistance in obtaining home improvement loans. In addition to its independent preschools, China has also established child care facilities and creches at primary schools so girls can bring their siblings to school (UNESCO Regional Office for Education in Asia and the Pacific 1984; Tilak 1989).

3. Increasing Understanding: Educating Parents and the Community

Community and parental resistance to girls' education is not limited to obvious economic reasons of high direct and opportunity costs alone. Sometimes they lack appreciation of the benefits, misunderstand the schooling process, and are ignorant of educational opportunities open to their daughters.

Media and Information Campaigns. Media and information campaigns have been tried in several developing countries to promote women's literacy and training (UNESCO 1989b). A

few campaigns have been aimed specifically at modifying community and parental attitudes towards educating girls and their roles in society. Morocco and Mali have mounted campaigns to extol the value of education as an investment (Bellew and King 1991).

Set against the backdrop of its national literacy campaign, Tanzania enjoyed considerable success in mobilizing females for literacy instruction. The success of the campaign has been attributed to several factors: involvement of national and local officials in a coordinated effort; emphasis on people's creativity and inherent value; popular participation; participation of local and self-help organizations; and use of rural libraries, newspapers, radio, film, and folkplays to spread the message. Underlying it all was a clear national policy and infrastructure that favored investment in basic education (UNESCO 1989b).

China also has used mass-media campaigns to increase female educational participation and improve women's status in society. Using "reasoning" and "systematic guidance" through work brigades and commune meetings to emphasize the importance of educating girls, Huxian County in Shaanxi Province has in five years achieved nearly universal education, with 98 percent of the children enrolled and 88 percent graduating primary school. Of approximately 71,000 students, 34,000 were girls (UNESCO Regional Office for Education in Asia and the Pacific 1984).

Social marketing techniques, most often used in health, family planning and child survival campaigns, are the base of a media campaign in Malawi to "promote girls education as an effective means to improved family well-being." This campaign targets parents and guardians of primary school-age girls. Because of limited media saturation in the country, the main approach of the campaign will be person-to-person and group outreach at the community level through extension and rural workers with different ministries. Communication will be facilitated through the "Theatre for Development," a troupe of university students majoring in drama who work with villagers to create plays around the themes the villagers have identified. This approach has proven successful with health-related issues (USAID forthcoming).

Educating the Educators. In the past decade, most countries have established either ministries or offices that deal exclusively with women's issues. It is difficult to gauge the success of these entities in affecting the educational outcomes of girls and women, but anecdotal evidence suggests that they face special problems. Often the ministry or office is without portfolio or budget and must depend on the cooperation of other ministries to institute projects or fund gender-related components (Kinsey et al. 1990). This problem is exemplified in the case of Bangladesh where the status and duties of the Ministry of Women's Affairs has shifted several times (World Bank 1990a).

Further, educators may have a limited understanding of the benefits of girls' education, the steps that the education sector can take to increase girls' educational participation, and the unintentionally negative impacts of some of its policies on girls. For example, one educator has stated that it offers equal educational opportunities in that "roughly 50 percent of the

places in grade one are for girls while 50 percent are for boys." The reader should note that this person is not referring to established quotas or guidelines, but rather is affirming that the state does not discriminate against girls. However, as we have seen, inaction may often result in discrimination against girls.

Awareness campaigns have been conducted at both ministerial and national levels. A recent AID-sponsored conference in Guatemala exemplifies how government, ministry, academic, and political leaders can be mobilized to set the stage for expanding girls' educational opportunities. The conference focussed on newly analyzed Guatemalan data concerning the strong positive relationship between the primary school education of girls and other indicators of national development. Its objective was to formulate specific policies and implement strategies to improve educational opportunities for girls. Key Guatemalan policymakers from the public and private sectors formed a National Commission on Girls' Education, charged with developing a national emergency plan to address the issue of girls' education, and develop and implement a national media campaign to raise the national awareness of the importance of educating girls. A month later, the Commission presented a document to the president of Guatemala, demonstrating the critical need for girls' education. From this initiative a series of activities have been launched (Clay per. com. 1991a; USAID cable 1991), but no data are available on their impact.

Community Participation. Community involvement in activities to promote girls' education appears to elevate the chances for success. Previously-reviewed interventions have been based on or included dimensions of community participation: in Pakistan, the mosque school initiative built on the Imam's standing in the community, and the mohalla school program took advantage of literate local women; India, Nepal, Yemen, and other countries have focussed on placing trained village women in classrooms as teachers; the promising Bangladesh and Guatemala scholarship programs have included community members and leaders in candidate selection; and the Escuela Nueva program in Colombia integrates the school and community through a parents' committee that works with a student council to develop joint projects and community-oriented learning activities that involve parents and engage adult interest.

Local participation in Bangladesh's Shawnirvar movement is used to stimulate demand for social services such as education and to widen female spheres of activity. Reportedly, girls' enrollment at the primary level increased by 50 percent--attaining a gross enrollment oratic--44 percent, in Shawnirvar villages, compared with the national average of 38 percent (UNESCO 1984; Khan 1989).

Parental Literacy and Education. Numerous studies have shown that the higher the level of parental education, the higher the educational participation of their daughters (Safilios-Rothschild 1979; Kelly and Elliott 1982; Chamie 1983; King and Lillard 1983; Khan 1989; Tilak 1989 for discussions). Results have varied as to which parent exerts the most influence on the girl.

To prescribe parental education as an intervention to improve girls' education may sound somewhat like circular reasoning, but instead may be viewed as arguing for both adult education and increased investment in girls' education to capture the intergenerational benefits. (A forthcoming AID monograph describes approaches and strategies to increase women's literacy and basic education.)

4. Increasing the Benefits: Beyond the Education Sector

Although beyond the scope of this chapter, it would be inappropriate to conclude a discussion of demand factors without acknowledging the central influence of greater economic and societal forces on the demand for girls' education.

Employment is a major, and fundamental, issue. In all countries, women's employment opportunities are less than men's, both in terms of job status and remuneration. But women's chances for remunerative employment are even fewer in developing countries, even controlling for such obvious factors as education and achievement (Smock 1981; Kelly 1989; Appleton, Collier, and Horsnell 1990).

We have seen that educational policies and practices can proscribe girls' employment opportunities by excluding them from or "pushing" them out of school prematurely, channeling them into low status-low paying professions, undermining their confidence and ambition, and providing education and training ill-suited to the job market. But factors--external to the education system--also keep the benefits low on girls' educational investment.[16]

Women are excluded from certain professions and certain sectors by custom; discriminatory pay structures keep wages low; protective regulations--such as sex segregation, pregnancy leave, and no-work-after-dark policies--may raise the cost of employing them; and negative employer attitudes about their competency and skills close doors to remunerative employment (Boserup 1970; Standing 1976; Anker and Hein 1985).

Although parents may not always view employment as the only reason to educate their daughters, they are aware of the connection. In Tunisia, there are more girls than boys enrolled in private, fee-paying vocational schools indicating that parents value education that will enhance employment opportunities (Jones in Kelly and Elliott 1982). Girls' selection of and participation in vocational education programs in Tunisia was predicated on their expectation of increased employability (Kelly 1987). Nonformal skills training projects tend to attract more women than men (Derryck 1978; Patel 1989), but if the link to income generation opportunities is removed, women will not attend classes or send their daughters (McSweeney and Freedman 1980).

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[16]Despite this, several researchers have found that the rate of return on female education is at least equal to and often exceed that for men (Psacharopoulos, 1985; Schulz 1989a).

Employment opportunities have positive effects on girls' education. Says Kelly, "...when, however, employment opens up, the demand for women's education is much greater on the parts of parents as well as girls" (1987, p. 99). For example, DeTray (1988) found in Malaysia that Chinese girls with similar achievement levels and test scores were less likely to pursue education than Chinese boys, because of limited employment opportunities. Also in Malaysia, a major stimulus to both boys' and girls' educational participation was the implementation of positive discrimination policies for Malays (Wang in Kelly and Elliott, 1982). Concludes Kelly, "In short, when remunerative employment is open to women, women go to school" (1987, p. 100).

What can be done to increase employment opportunities for educated girls? Certainly changes in the legal status of women in the workforce and enforcement of de jure policies would help. Changes in social customs have also positively influenced women's employment and educational participation. The amendment of strict marriage laws in Tunisia--extending the right of women to divorce, raising the minimum marriage age, and requiring a girls' consent to marry--all were found to benefit girls' educational participation (Jones 1980). The success of interventions in the education sector to improve girls' educational participation will ultimately be affected by the social environment in which girls live.

CHAPTER IV

Nontraditional Alternatives for Girls' Education: Out-of-school Programs for Girls

A. Overview

Formal education is generally considered the norm and advocated for children aged 6-14 years, even in low-enrollment/high dropout developing countries. If successful, its advantages are multiple: transfer of cognitive and manipulative skills; acclimation to the process of schooling, which enhances later trainability; and acquisition of formal credentials that convey status, increased employability, and result in higher private and public economic returns.

But many children and girls fall through the net of formal education because of its inaccessibility, high cost, and irrelevancy. Despite high gross enrollment rates in developing countries, fewer than 60 percent of those who enter school in low-income countries reach the last year of primary school (Lockheed and Verspoor 1990). Although notable progress in girls' participation has been made, the vast majority of girls in the 40 poorest countries will not receive a basic education. In India alone, approximately 95 percent of the nonenrolled children at the primary stage are girls (Mellbring, Österling, and Persson 1983). The low enrollment rate of girls is exacerbated by the high attrition rate at a stage before literacy skills can be acquired. By the fifth year of primary school, more girls than boys have left school, with the result that three-fourths of the world's illiterates are women (Patel 1989).

Out-of-school programs offer basic education to school-age girls who are either "left out," "pushed out," or have "dropped out" of the formal education system, and who numerically account for the majority of children in low-income countries (Fordham 1980). The "hard core" of nonenrolled girls who are likely to remain beyond the reach of formal school generally belongs to the weaker sections of society--disadvantaged ethnic groups and castes, poor farmer and landless laborers, urban slum-dwellers, etc. (Mellbring, Österling, and Persson 1983). Families depend on girls' labor for survival, and few incentives can compensate these poverty-stricken parents for its loss.

Nontraditional programs for out-of-school children can work around these constraints by providing a structured program of learning in a noninstitutional environment based on a learner-centered curriculum and flexible schedule. The advantages for girls who have never entered school, who are unable to complete school, or who cannot continue their studies at a higher level are obvious. In theory, these programs are flexible, condensed, innovative in terms of teaching methods, and tailored to local conditions and children's needs and designed to eliminate both the defects and traditions of formal schooling. In reality, however, out-of-school programs are often of poor quality, based on competitive entry, and unsuccessful in providing basic skills and competencies to their disadvantaged students (Derryck 1978).

Further, they cannot compete with formal schooling in terms of prestige or subsequent income streams.

With the realization that, in the 1960s and 1970s, even with the expansion and reform of the formal school system, a wide variety of educational and learning needs, particularly of the rural poor, could not be met, numerous nonformal education projects were launched for older adolescents and adults. These programs, carried on outside the framework of the formal educational system, were often distinguished by a vocational or functional training component, including--for example--agricultural extension, farmer training, and instruction in health, nutrition, family planning, etc. (Coombs and Ahmed 1974). In general, the results were disappointing and expectations of more efficient use of educational resources went unmet (Coombs 1985).

Recent years, though, have seen a new appreciation of the lessons learned from the nonformal education efforts of the 1970s. These experiences have been recast into nontraditional approaches aimed at providing basic literacy and numeracy skills to primary school-age children. Two approaches seem to predominate. One, using the primary school curriculum as its base, tailors the educational program to meet the needs of its young clients, essentially resulting in the development of an alternative primary school model. The other, perhaps closer to the origins and traditional philosophy of nonformal education, combines basic literacy with other functional skills and does not necessarily aim at replicating the goals of the formal school system. We describe in this chapter several programs whose results suggest that nontraditional, multi-dimensional programs that respond to the life circumstances of girls are effective in imparting basic skills, providing them with an education that they might not otherwise receive and, in some cases, assisting them in gaining a place within the formal system.

The supply-demand categorization used in earlier chapters must give way to a slightly altered approach in treating nontraditional programs in order to capture the interaction between supply- and demand-side factors. The very nature of the nontraditional approaches to primary education described below successfully combines both supply-side and demand-side factors so that disaggregation would eliminate just the characteristic that makes the programs promising. The programs we have identified are in Nepal, Bangladesh, India, and the Dominican Republic.[17] Brief descriptions of other programs that sound promising but have little information are also presented.

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[17]The literature on nontraditional approaches to female education in Nepal, India, and Bangladesh is surprisingly abundant--and also confusing. The same project is often identified by different names or no name at all, and is credited with separate support from different donors. In one case, we discovered the same project had been written up several times, with no distinctive identification and with varying evaluation data. In different documents, individual donors claimed involvement. Upon investigation, it appears that data from different regions participating in the same project were used and that multiple donors had contributed to different phases and aspects of the program. In cases where we are uncertain whether the program is ongoing, we have used the present tense.

B. Case Studies: Approaches with Promise

1. Nepal

In 1975, less than 25 percent of the population was literate; only 5.2 percent of all women were literate (Acharya n.d.). The National Literacy Program in Nepal was launched in 1984, with the participation and implementation assistance of international donors (USAID, UNESCO, UNICEF), an international NGO's (Save the Children), and local agencies. United under the umbrella of the program, several different activities or projects aimed at different regions and audiences have been undertaken.

The Cheli Beti Project. Begun in 1983, the Cheli Beti ("young girl") Project provides one-year basic literacy and numeracy training to girls, ages 6-13, in the remote Seti zone, one of the least developed regions in Nepal. In this zone, less than 7 percent of the girls enroll in formal primary school because of heavy household responsibilities, lack of female teachers, and preference given to boys. In 1986-87, over 750 girls were enrolled in 39 classes.

Classes are held six mornings a week between 7:30 and 9:00, before girls must start their chores. The classroom may be a local house, the village square, or an open field--whatever is convenient and available. Local female secondary school students are recruited, trained by the project in teaching methods (35 days), and paid a nominal fee ($0.70) per class. They are provided with a chalkboard and student materials.

A keyword approach, linked to practical activities, is used to impart functional literacy. A series of stories about a village girl going about her daily life comprises the core curriculum. Frequent discussion and interaction with the teacher encourages independent thinking. The girls read, write, count, play, and sing, with activities varying with the lesson.

After two weeks, most girls can read and write key words with ease, the older ones learning at an accelerated pace, in contrast with formal school where the first year is used to memorize the alphabet. Comments from followup interviews with parents, who had expressed doubt about the program, were generally favorable, although not enthusiastic. Parents approved of the proximity of the program and its noninterference with domestic tasks. Opposition to the program came from higher castes, who resisted education for the "untouchables."

The annual project cost is estimated at $50 per girl; tuition and materials are free. The project has been supported by UNICEF, UNDP, and others.

(Junge and Shrestha 1984; APEID/UNESCO 1985b; Patel 1989; UNESCO 1989; Comings, pers. com. 1991).

The Naulo Bihana Project. This intensive, nine-month (350-400 hours) program targets out-of-school children, aged 8-14, and offers the equivalent of the first three years of primary school. The program uses a nationally developed set of materials whose instructional strategy

is founded on active learning, peer teaching, and group discussions based on key words and poster drawings. Two books are used. Classes are held during the day, at convenient times for the students.

Seventy percent of the students are girls. In total, over 75 percent of the students score over 60/100 on the test; 20 percent scored over 90/100. Fifty-four percent of the children who completed the out-of-school program enroll in primary school, with the majority in grades 3 and 4. More than half are girls.

With no major recruitment efforts, why do so many girls flock to the program? Nearly all marriages in rural areas are arranged. Anecdotal evidence suggests that as more boys are educated, they are asking for literate wives, which motivates parents to send their 10-11 year old daughters to an educational program. The program offers a cheap, easy way to educate girls. The next, unanswered question is: Why do parents allow girls who complete the nontraditional program to matriculate into primary school a year later if marriage is imminent?

Annual project cost per student is approximately $15; tuition and materials are provided free of charge. Public primary school costs are $12 to the government and $10 to parents for materials, etc. The project is administered by Unicef with World Bank funding.

(Comings, pers. com. 1991; Comings, Shrestha, and Smith 1991)

Nonformal Education in Takukot Panchayat. This community-based education project did not deliberately target either children or girls. But with 34 percent of the participants under 14 years of age and over 85 percent female (60 percent unmarried girls), the project classes have become a significant alternative to the formal school system for girls prevented from attending because of their household responsibilities and poverty.

The three-year program combines literacy training with functional skill development (agriculture, livestock, etc.). The materials used have been developed by the National Literacy Program, designed to introduce development-oriented activities with a learner-centered approach, such as the use of key words, comic book formats, posters, and peer teaching. The content of the lesson relates to the daily details of the participants' lives and provides opportunities for discussion.

Each class is held for approximately 2 hours, six evenings a week, in a community-provided shelter. Participants are responsible for its upkeep and must pay a small registration and materials fee, which is deposited into a community-managed account. Classes are led by locally recruited facilitators and consist of scheduled reading and writing exercises supplemented with games, quizzes, contests, debates, and development projects.

Results are encouraging. Children who attend the classes for one or two phases "drop out" to attend regular school. Local attitudes towards sending children to school have changed.

Where no children were enrolled in primary school prior to the project's initiation in one village, there are now several attending school. Fewer girls dropped out than boys, demonstrating a high motivation to learn.

A small fee is charged. The project is supported by Save the Children.

(Sob and Leslie 1988; Comings, Shrestha, and Smith 1991)

2. Bangladesh

Poverty and strict social and religious customs governing female mobility conspire to give Bangladesh one of the widest gender gaps in literacy--21 percent. Large class sizes and high absenteeism (as much as 50 percent) for teachers in primary school discourage students early in the system. Seventy-five percent do not complete primary school.

The BRAC Nonformal Primary Education Programme. In 1985, the NGO, Bangladesh Rural Advancement Committee (BRAC), created a primary education program in response to requests from the rural poor. Today the program is in 4,500 experimental "schools," teaching 100,000 "unreachable" children from rural, landless families to read.[18] Seventy percent of them are girls.

The BRAC program consists of two models that approximate the first three years of formal primary school, directed at two separate age groups. Nonformal Primary Education (NFPE) is a three-year program for children aged 8-11 who have never been in school or dropped out in grade 1. The same teacher instructs the children for the entire course of study.

Targeting older children (11-14 years old), Primary Education for Older Children (PEOC) is a two-year course that combines a condensed version of the NFPE course with more functional skills, as older children learn more rapidly. Seventy-five percent are girls.

Both NFPE and PEOC classes meet 2.5-3 hours per day for 268 days per year at times decided by parents. School space is rented from a group or individual in the community, and no more than 30 children are permitted per teacher. New classes are opened if there is enough support. Teachers are supplied with materials and a trunk for storage, and students receive pencils, notebooks, slate, and learning materials. Given the home conditions of most students, the program assigns little homework, and most learning takes place in the class.

Teachers are recruited from the village and have an average of nine years of schooling. Seventy-five percent are young, married women. In contrast with government school teachers, BRAC teachers are nontenured, their performance is evaluated regularly, and

[18]Twenty percent of BRAC students come from families with literate or semi-literate parents that own some land and have somewhat higher monthly incomes.

absenteeism is grounds for dismissal. In addition to a 12-day initial training course, teachers receive refresher training and meet monthly with supervisors.

Curricular materials and teaching methods are learner-centered and participatory. Lessons have a practical focus, and a children's magazine is published for at-home reading. Schools are managed by parent-teacher committees with the assistance of project organizers.

BRAC schools have enjoyed notable success: the dropout rate is only 1.5 percent for the three-year course; daily attendance exceeds 95 percent; and 95 percent of the students have passed examinations allowing them to enter grade 4 and are doing so. Single-class comparisons show 88 percent of BRAC's girl students enter the formal system's fourth grade, while 45 percent of girls in formal primary school enter the same grade. Test scores of BRAC students in reading and writing equals government schools; BRAC scores in math and social studies are only slightly behind. The teacher dropout rate is less than 2 percent. Eighty-five percent of parents indicated that they sent their children to BRAC schools because they were free.

Annual project costs are estimated at $15 per student, with no charges for materials; government schools cost $10 per student with additional fees for parents. The project has been funded by Interpares (Canada), NORAD (Norway), SIDA (Sweden), and UNICEF.

The BRAC Programme demonstrates that neither poverty nor gender are insurmountable barriers to primary education. Rural people will send their daughters to schools that are effective, that will channel them into the mainstream educational system, and are truly free. In 1990, the World Bank recommended that the project be extended and replicated.

(Lovell and Fatema 1989; World Bank 1990a; Comings, pers. com. 1991)

Underprivileged Children's Education Project. The project targets working, urban children (age 9-11). Two hours per day, six days per week the children attend a "street school," using a condensed version of the primary school curriculum that allows them to pass through the course rapidly and does not impinge on their ability to earn a living.

(UNESCO Regional Office for Asia and the Pacific 1984)

Grameen Bank Pre-Primary Program. The Grameen Bank, which extends credit to women, has prepared a set of materials for 5-6 year olds. Clients are urged to use them to prepare their children for school. There is a small charge.

3. India

While in 1976, India had virtually achieved universal primary education for boys (97.5 percent) at the lower grades, fewer than 64 percent of the girls ever started school. The

gender gap continued and increased at the upper primary grades. Indian girls have little chance of becoming literate adults.

Pune (Maharashtra) Primary Education Project. "We are working children, we are learning children" was the song joyfully shouted by 1,040 girls participating in a 1981 action research project run by the Indian Institute of Education. The nonformal education project assumes that education for all children requires an alternative approach that combines quality instruction with convenient scheduling for older, working children.

The project targets illiterate children aged 9-14 years old. Classes, in community-provided facilities, are provided in 17 villages with an initial enrollment of 1,431 students. Classes are held between 7-9 in the evening, after children had finished their chores, 300 days a year according to the local agricultural calendar. Classes of no more than 20 children, are ungraded, and children are allowed to move at their own pace. Teachers are recruited from the local community, trained, and provided with a small stipend. Few have completed secondary school and less than 40 percent are women. Special efforts to recruit women are frustrated by the low number of women literates in the area.

Curricular materials, developed by the project, are oriented towards village life, using reading and story cards to replace a primer, and supplemented by language games and songs. Homework consists of finding "show and tell" items; and exams are replaced by an annual festival, that brings the different villages together to demonstrate and celebrate their math and reading skills.

Over 70 percent of the students are girls. The annual dropout rate of 20 percent is far less than the normal 50-70 percent dropout rate experienced in grade 1 of primary school; and only 18 percent of the girls leave the program compared with 21 percent of the boys. Parents explained that they sent their daughters because girls needed literacy to "keep accounts; to read and write letters;...and to manage their life well." The girls themselves are eager to learn, and both parents and daughters agree that the timing of the classes makes attendance possible.

The project is supported by central and state authorities, the local education authority of the Pune District, and UNICEF.

(Naik, in Kelly and Elliott 1982)

The Tilonia Experiment. In 1975, an experimental, nonformal education project for out-of-school children was started in three villages in the rural state of Rajasthan. Morning schools were provided for normal school goers and evening classes were started for children who worked during the day. The program used the same curriculum used in formal schools, to allow transfers to the formal system, but with some radical modifications: the modified curriculum emphasized agriculture and animal husbandry; and it dispensed with textbooks,

using instead the teachers, games, local community leaders, and discussion as the major instructional tools. Suitable local people were trained as teachers.

After one year, attendance had doubled in the morning school, and in the evenings even exhausted children came to school. Personal visits by the teacher to the children's homes resulted in 80 percent enrollment of children. The agricultural slant sustained fathers' interest in the program. By 1980, the project had expanded to 10 villages with more than 500 children.

(Roy 1980)

Comprehensive Access to Primary Education (CAPE). The program was launched by the government in 1979 for out-of-school children, 6-14 years of age, in order to advance its universalization of education campaign. The decentralized curriculum emphasizes local relevancy and specificity. Teaching methods are problem-centered, and teachers are trained in materials production. The timing is flexible, responding to local calendars. Of the nearly 50,000 children enrolled, less than 35 percent are girls. But their success rate on the grade 5 exam exceeds 87 percent, while boys' is approximately 75 percent.

(Mellbring, Österling, and Persson 1983; UNESCO Regional Office for Asia and the Pacific 1984)

4. ***Dominican Republic***

Although over 90 percent of the children in the Dominican Republic are enrolled in primary school, in the remote rural province of Barahona, bordering Haiti, 20 percent of the primary-school aged children are prevented from attending school by isolation and poverty. Many communities have neither schoolhouse nor teacher. When they do, parents cannot afford the necessary uniforms and supplies. Children must work the coffee and cane fields to contribute to their families' survival. Their prospects for literacy are dim.

Radio-Assisted Community Basic Education (RADECO). Initiated in 1983, the RADECO Project reaches these children through interactive radio instruction. But unlike other radio education projects that have targeted a single subject area in the traditional schools of the formal system, the RADECO project offers comprehensive basic education to out-of-school children where no formal school exists. Classes are held in the late afternoon to accommodate working children's schedules, and students spend about one hour per day in class. RADECO students are older than their public school counterparts, and most are girls.

RADECO schools are modest huts constructed and maintained by the community. Literate members of the community are selected to serve as "radioauxiliaries"--to convene the interactive classes and guide students in following the interactive radio lessons. They review student worksheets and identify problems to supervisors who visit the classes regularly. The typical radioauxiliary is a young, unmarried man with about a sixth-grade education.

Radioauxiliaries receive a small stipend. As they are not expected to serve as teachers, their training is limited to a two-day introduction and a set of notes explaining each lesson.

The interactive radio instruction lessons are designed as substitutes for a regular classroom teacher. Each grade-level program consists of 170 one-hour lessons, with approximately 50 minutes devoted to mathematics and language instruction and ten minutes to social science, natural science, or recreation segments. Lessons are intensively interactive. There are frequent pauses for student responses (approximately 100 per half-hour), and students are constantly stimulated by questions, singing, and games. Learning objectives are identical to those in regular public school; at the end of the school year, RADECO students will have acquired comparable basic education skills.

Comparisons between RADECO students in the first and second grades with students in control schools showed that RADECO students performed better on the posttests, with a particular advantage in mathematics. Their writing skills, however, did not equal those of traditional school students. A later evaluation, which corrected for testing several biases, found that RADECO children attained comparable skills in reading, writing, and language and that their lead in mathematics was significant. The RADECO experience demonstrates that even where schools are not available, children--and especially girls--can learn to read and write.

Annual costs per student are projected at $15 (based on the project going to scale); tuition and materials are free. The Project received support from USAID. In 1986, funding responsibility was assumed by the Dominican Secretariat of Education.

(Eshgh et al. 1988; US Agency for International Development 1990c).

5. Other

Several other projects were mentioned in the literature but with few details. Among them were:

- **The Ashram School Project** (Thailand) run by the Nonformal Education Office of the ministry as part of a program developed for the isolated hill tribes. The multi-grade teaching approach organizes students by assigning them to tables according to skill level in various subjects. Depending on the subject, students move to different tables allowing one or two teachers to manage the school. Girls' attendance is reportedly high (Comings, pers. com. 1991).

- **The Madhya Pradesh State Project** (India) condenses the primary school curriculum to two years in order to reach children, mostly girls, working in the handicrafts industry. Located in the local school or town office after hours, children can attend and work at same time (UNESCO Regional Office for Education in Asia and the Pacific 1984).

- **The Kwansis Community School Project** (Tanzania) integrates primary school into the community by increasing interaction by student and community leaders (Fordham 1980).

- **Village library schemes** (Kenya and Jamaica) have proven successful in reaching girls who have dropped out of upper primary school (Fordham 1980).

C. Ingredients for Success

It is obvious that the programs described above have several things in common. Above all they share two things: an approach responsive to and founded on the realities of out-of-school children's lives; and a multi-dimensional approach that combines both supply- and demand side factors. These nontraditional programs employ interventions that target not just one barrier to girls' participation but several, making education both available and accessible to girls.

On the supply side, these programs have provided:

- classes situated locally, easily within reach of the participants;

- effective teachers, made so by recruiting them locally and training them to implement the program curricula;

- appropriate pedagogy, taking children unused to formalized instruction and introducing them to structured learning through games, songs, stories, etc. in a relaxed learning environment;

- a friendly classroom environment that allows for individual success and personal validation through mastery learning techniques and key word approaches, peer-tutoring, etc; and

- quality instructional materials that are of interest and reflect girls' daily lives, substituting reading and story cards with primers and textbooks where necessary; and providing at-home reading materials.

On the demand side, the programs reflect the limited time that girls have to devote to schooling and the costs their parents face in sending them to school, by providing:

- free education that has no hidden direct costs for materials, tutoring, uniforms, etc;

- classes at convenient times and schedules, reflecting the less-than-ideal conditions that require girls' household labor and reduce opportunity costs.

- condensed primary school curricula that both shorten the time requirements and also acknowledge the relatively truncated time frame girls have to devote to schooling, due to early marriage;

- community participation that leads to ownership through joint planning, marketing and management; and

- the opportunity to matriculate into formal primary school in order to maximize the value of nontraditional schooling.

What is striking about most of these nontraditional efforts is that, even when located in countries, regions, and cultures that have proven most resistant to girls' formal education, girls flock to them, persist, and experience a high degree of success. Barriers of poverty and prejudice against educating girls can be overcome by carefully crafting educational interventions. But hard questions must be raised about the replicability of successful nontraditional programs.

Like earlier nonformal education programs, the potential impact of nontraditional approaches may be limited by the very attributes that have contributed to their success (Coombs 1985). Nontraditional programs and projects for out-of-school girls have been specifically developed for a particular clientele and in a specific context; this specificity may limit their effectiveness in other contexts and regions where the barriers to girls' education are not the same. Difficult organizational problems must also be overcome if nontraditional approaches are to have widespread impact. Education is an aspect of nearly all development activities and cuts across sectoral, ministry, and institutional boundaries. Often these groups prefer to work separately and, consequently, there is little integration and coordination of efforts. Where students are particularly interested in matriculating into the formal system of education or obtaining some form of credential, the lack of standardized or coordinated instructional standards can be discouraging. Finally, there are economic considerations. Certain programs, though effective, may prove too costly to expand. Nontraditional approaches often rely on private or donor funding, and their long-term survival is not assured, which can lessen both their credibility in the eyes of the community and their effectiveness.

CHAPTER V

Summary of Supply-side, Demand-side, and Nontraditional Approaches: What Works; What Doesn't

This chapter presents a brief summary of the three preceding chapters on supply- and demand side approaches that have been tried to improve girls' educational participation in the formal system, as well as nontraditional approaches to expand educational opportunities for out-of-school girls.

Formal and nontraditional strategies and interventions reviewed have addressed both supply side and demand side issues. Responding to both real and assumed barriers, governments, donors, and NGOs have attempted to make education both available and accessible to girls by taking into consideration the types of schools, instruction, teachers, and incentives required.

At a policy level, it is obvious that universal, free education has done more to extend girls' educational opportunities in many countries than any other intervention. Yet, given both the continued overall low levels of access, peresistence, and achievement of girls in primary school and the gender disparities, it is equally obvious that educational expansion has not gone far enough. To some degree, these policies to universalize education may have inherent limitations and cannot alone be expected to bring all girls into the educational system; other demand factors must be considered. But to optimize their impact, policies must mean what they say and be implemented accordingly. Otherwise they are at best meaningless or at worse destructive, resulting in perverse effects that actually hurt girls' educational participation.

Availability of school places is, of course, a basic necessity. In most low-income countries there are not enough schools to accommodate all the eligible children. Fiscal constraints and budgetary limitations indicate that there may be limits to replicating the present school systems.

At a program level, specific efforts are needed to buttress educational expansion policies. Alternative means of educational expansion--such as double shifts, multigrade classrooms, and larger classes--have been tried with no apparent deleterious effects on girls' performance and persistence. Yet ironically as their major function is to increase school capacity, there are no data available on these strategies' efficacy in increasing girls' enrollments. We are unsure whether girls profit less than boys from this type of educational expansion as they have with the more traditional method of adding schools, teachers, and classrooms.

Improving girls' educational outcomes may require making schools more accessible--according to local definitions of accessibility. These could have diverse meanings--such as proximity or single-sex schools, mosque schools or female teachers, or some combination. What is acceptable in one country or region may not be in another. In addition, creating

culturally appropriate facilities appears key in increasing parental demand, particularly in cultures where female mobility is circumscribed by religion or tradition. When schools are tailored to meet parental concerns for their daughters' safety and chastity, other parental biases seem to be eroded--at least in part. One note: while there is a certain emphasis in the literature on the need for facilities such as latrines, there are no data on the results of programs that have introduced these facilities. Some evidence suggests that what appears on parental wish lists may in actuality have low priority if other more meaningful changes take place in the environment.

Interventions that effect enrollment increases in some countries, e.g., single-sex schools and female teachers, may also effect achievement and attitudinal changes in other countries. Almost universally, girls do better in all-female schools. The studies reviewed are inconclusive as to why--peer effects and female teacher presence are the most often suggested reasons. However, the evidence is mixed on the effectiveness of female teachers, suggesting that much depends on the type of female the teacher is and vice versa. Several methods of expanding the female teaching force have been tried. Few evaluations have linked the specific programs with educational outcomes in girls. Local recruitment efforts accompanied by special training appear to hold the most promise, based on available data. This does not negate the validity of other teacher recruitment programs, but it appears that they have either not been thought through, have not been properly implemented, or have not been integrated with other interventions sharing the same objective of increasing the female teacher stock.

Getting girls into school is only part of the battle; helping them to stay there and learn is the other. Within the classroom girls face several disadvantages. Stereotypes of female roles, behaviors, and abilities may limit girls' educational and career options as well as undermine their confidence and self-image. Teachers, reflecting wider societal prejudices, may ignore or discourage their girl students so that they eventually fail or drop out. For at least two decades, textbook and curriculum revision has been a popular response, but the effects on girls are either largely unmeasured or are negligible. Teacher awareness programs are intuitively appealing, but no data are available on their effects. Even if momentarily successful, one must wonder how far they can go in mitigating societal influences on teacher behavior.

School quality improvements have been found to help all children, but have been especially helpful to girls, perhaps because of their low educational outcome level. Echoing general research findings, two studies show textbooks to have positive effects on girls' achievement and attainment as well as enrollment. The research is clearly not abundant and different quality-enhancing inputs are not differentiated as to which is more efficient. Not textbooks, but quality materials are important in nontraditional approaches, as are the teaching methods, such as an interactive and key word approach. Cross-fertilization between formal primary and less traditional primary approaches is not evident in the literature, except in the case of Colombia's Escuela Nueva.

Costs associated with schooling seem to be the single most important factor in depressing parental demand. Incentives and some types of subsidies seem to overcome cultural objections, even in the most traditional communities. However, these subsidies must be significant enough to outweigh both direct and opportunity costs, representing--in effect--an income transfer. Where schooling is tuition-free, subsidies for texts and uniforms count, but those alone are not enough to outweigh heavy opportunity costs. School meals have shown little influence by themselves on educational outcomes, but it is necessary to question the measures used for effectiveness. Cognitive development is not the same as school achievement, although it should affect it. Measures used may not be refined enough to capture the benefits meaningful to educators.

Reducing opportunity costs with labor-saving techniques only results in liberating girls for more work. Incentives with more direct linkages to schooling are required as borne out by parental reactions to scholarships and free nontraditional education programs: if the child is in school, parents either get the money or have to pay nothing. When free education is coupled with proximity and convenient scheduling, it produces very positive results as evidenced by enrollments in certain nontraditional primary school programs. Day care for younger siblings certainly addresses a need, and programs that provide it free of charge--and at the school itself--seem promising although underdocumented.

Nontraditional approaches to girls' education that address both supply side and demand side issues appear to have enjoyed notable success in attracting girls. The majority of the nontraditional approaches share many of the same instructional goals of the formal system and adapt the primary school curriculum to the needs of girls--using effective pedagogy and conforming to the demands of girls' schedules and responsibilities. Questions about the feasibility of their replication and cost must be answered.

Limiting factors for effecting change both in schools and in the home are negative societal attitudes towards girls'education and lack of appreciation of its benefits. Information and social marketing campaigns have enjoyed some success in some countries under certain conditions: when they are accompanied by programs to facilitate girls' access to schooling, when they are community-based, when they call on local NGOs and organizations to spread the word, and when they employ media and messages that are customarily in use and comprehensible to the public.

Finally, parents may well appreciate the benefits of girls' education--and still determine that they are meager given the limited job opportunities open to, low wages commanded by, and low status held by women in the labor market.

In light of the ambiguities and idiosyncratic nature of the interventions, strategies, and input reviewed in the previous chapters, to claim to summarize "what works and what doesn't" is an optimistic overstatement. Yet some clear trends emerge. In the next chapter, we will examine some options open to planners and explore some of the implications of these interventions.

CHAPTER VI

Policy Implications And Conclusions

This final chapter examines some of the options for improving girls' educational participation and explores the policy implications of these interventions. The chapter is organized into three sections. First, it identifies the interventions and strategies we find most promising to increase girls' access, persistence, and achievement. Second, it explores the barriers to policy change and program implementation. Third, it suggests areas and guidelines for USAID efforts to improve education for girls.

A. Promising Interventions

What does it take to get girls into school and keep them there? While poverty in low-income countries has depressed both the supply of and demand for educational services below optimal levels for all children, the issues and factors that affect girls' educational participation are not the same as for boys, nor are the associated costs and benefits of their education. Making schooling and basic education available and accessible to girls calls for strategies, interventions, and resources quite different from those that have proven successful for boys.

Expanding the number of school places is less effective for girls than boys. While patterns of educational expansion show that girls' educational participation inexorably follows boys' and some may recommend the pursuit of universal primary education for all as the surest means of eventually achieving it for girls, the question is whether we can afford to wait. Female education has greater impact than male education on productivity and results in greater intergenerational benefits. While sufficient school places are a basic necessity, educational expansion alone is limited in its ability to reach those girls who are kept from school for reasons other than constraints on supply.

Because of differences in the social and economic roles of girls and boys (and of the men and women they will become) prescribed by tradition, culture, and religion, schools must be structured and organized differently for girls. For example, while coeducational facilities--which in many places translate into predominantly male institutions--may not inhibit boys' participation and in some cases even improve it, single-sex schooling for girls has been shown to improve enrollment, persistence, and performance. While staffing schools with trained teachers is important to student achievement, staffing schools with trained *female* teachers may be critical to girls' enrollment and achievement. Quality instruction reduces wastage in the education system and benefits all students, but for girls--who are given few chances for grade repetition--it may mean the difference between staying in school or dropping out.

Ideally, we would like to identify and then invest in those interventions that have the greatest net positive effect on girls. This goal, however, has two major shortcomings: 1) multiple

interventions are seldom implemented in the same environment, assessed, and assigned relative weights of effectiveness; and 2) the single interventions that have been tried are not conducted in a vacuum, and seldom do we know the extenuating circumstances that contributed to either their success or failure. We have learned, however, that context is important; we can assume neither the problems nor solutions are the same in all instances. Policy and program responses that are appropriate and successful in one country may not have the same impact in another. For example, reducing the opportunity costs of schooling for girls in Botswana--where the costs are already low--is likely to have little impact, whereas reducing them in Nepal has been shown to be key to girls' participation in out-of-school programs.

It is also clear that supportive educational policies are a precondition of improving girls' educational participation. An environment in which educational policies both intentionally and unintentionally discriminate against girls does not provide fertile ground for the successful implantation of programs or interventions aimed at girls. While some policies are obvious in their negative bias toward girls, others are less so. For example, open admissions policies seem inherently democratic, but upon reflection it becomes apparent that girls suffer from admissions based on either merit or "first-come, first-served" criteria. Because society as it is currently structured is often inherently unfair to girls, policies must be examined for unintended consequences. Supplementary or supportive policies must be enforced to make efforts at extending education to all meaningful.

Single interventions, however appropriate and responsive to the needs of girls and their parents, are unlikely to have the scope and force of impact necessary to significantly improve girls' educational participation. High-quality, non-biased textbooks do little for girls who are kept out of school because they can neither afford tuition or the price of the book; nor may such quality improvements necessarily overcome social forces both in and outside school that may impress on the girl that education is unfeminine. As many authors have pointed out, the complex web of social, economic, cultural, and religious interrelations that affect girls' educational participation requires multi-dimensional strategies to address both supply and demand factors.

No clear, unambiguous solutions to improving girls' educational participation have emerged from this review of what has been done to make education more available and accessible to girls. On a general level, we have seen that school availability is made meaningful by enhancing accessibility, through truly nondiscriminatory policies, culturally appropriate facilities, quality instruction, relevant curricula, and affordability. More specifically--and based on inconclusive evidence--we would suggest that three interventions stand out from the others in terms of effectiveness: single-sex schooling, scholarships, and certain nontraditional approaches to girls' education.

In few cases does single-sex schooling for girls seem to be the result of deliberate policy intervention. In some countries (e.g., Saudi Arabia), it is mandated because of strict religious observance. But in most others, even where there are strong religious or cultural strictures

against coeducation, single-sex schooling for girls seems to be an afterthought or left to the mechanism of the private market. Unlike some educational innovations such as multigrade classrooms (the sophisticated equivalent of the one-room schoolhouse), all-girl schools are treated as antediluvian and reminiscent of a less egalitarian age, before pluralism--in principle--reached the classroom. Despite noted reluctance to promote all-girls schools, the literature surveyed on single-sex schooling in developing countries shows that girls in these schools flourished in terms of educational outcomes. These findings are too important to dismiss out of a misplaced sense of political correctness. Separate facilities, if they receive the same resources, may in this case promote equality of educational opportunity. Although it is lamentable that girls cannot get the same education in a classroom with boys, the fact is they do not. Consequently, planners should see single-sex schooling for girls as a strong policy option.

The claim is often made that segregated facilities for girls and boys are too costly; the de facto result is that single-sex schools are built for boys. The question of cost can be approached from two directions. First, future educational expansion efforts can be aimed primarily towards constructing, staffing, and equipping girls' schools. Second, aspects of single-sex schools can be copied without actually replicating the school itself: segregated classes, different shifts, etc. could be implemented. Finally, although this begs the question, a clear understanding of what goes on in single-sex schools for girls can inform improvements in coeducational institutions.

Costs are a major inhibiting factor in girls' access, attainment, and, ultimately, achievement in all schools. Tuition payments, book and uniform purchases, household labor lost and sibling care sacrificed to school attendance, and distance to schools seem both to present the greatest barriers to girls' education and also are most amenable to intervention with the most positive results. In general the literature reviewed treated girls' scholarships favorably, and in the cases of Bangladesh and Guatemala, we have proof that scholarships do indeed have dramatic effects on girls' educational participation and out-of-school behavior. This does not mean that all scholarship schemes will produce the same results. These programs were carefully designed to address a major barrier to girls' education and conform to community standards--by involving the community in selection procedures, benefiting the schools and teachers, providing tutoring, and establishing incentives and terms considered attractive and fair. Cost data for the Bangladesh program indicate that by conventional standards, it is not an inexpensive program, and indeed USAID's hesitation in continuing funding seemed to rest partially on this issue. Unfortunately, we found no study that monetized the extremely high benefits to counteract criticisms of cost needed to establish a rate of return, but the evidence of scholarships' effectiveness is so compelling that it cannot be dismissed. Both theory and research suggest that scholarship programs need only be provided for one generation of girls in order to improve the educational participation levels of subsequent generations of girls.[18]

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[18]For a discussion of the impact of mothers' primary education on their daughters' educational participation, see Floro and Wolf (1990).

Programs to increase the affordability of education must be significant enough to offset the real costs to parents. Free schooling, school meals, and textbook and uniform subsidies as single interventions may not have had strong positive impacts on girls' educational participation because they did not alleviate to the extent necessary the true financial burden girls' education places on households. The scholarship programs in Bangladesh and Guatemala were successful because they not only subsidized the direct costs of schooling, but also alleviated the indirect ones and, in Bangladesh, promised long-term benefits in terms of increased employability, higher earning capacity, and lower dowry payments.

Nontraditional approaches to girls' basic education also deal with fundamental issues of cost. Programs such as Cheli Beti in Nepal, BRAC Nonformal Primary Education Programme in Bangladesh, and Pune Primary Education Project eliminate direct costs of tuition and materials, as well as the indirect costs of girls' labor lost to school attendance, travel, and homework time. Condensed curricula, flexible scheduling, and effective instruction combine to transfer basic skills efficiently and effectively to girls whose opportunity for learning must be fit into the short interval before early marriage. That many of these nontraditional programs provide for the mainstreaming of their students into the formal schooling system counters claims that nontraditional programs necessarily provide inferior and less valuable education. Indeed, the Escuela Nueva in Colombia translates many of the dimensions of nontraditional approaches into a program in the formal public school system. As the limitations of traditional educational expansion for vulnerable groups in society become more apparent, programs such as these merit mainstream consideration.

Each of these three interventions--single-sex schooling, scholarships, and nontraditional education--are multidimensional in nature, which may explain their success. Rather than tackle a single barrier to girl's education, they contrive to address many. All-girl schools provide culturally appropriate facilities and a supportive environment relatively free of undermining stereotypes that enhance the quality of education. Scholarships alleviate costs of tuition, incidentals, and lost opportunities; and the successful programs insist on regular attendance, promote equal treatment in the classroom, and provide additional tutoring. Nontraditional basic education programs eliminate direct costs, minimize opportunity costs, are culturally sensitive, and provide quality instruction. The holistic approach of these interventions captures the critical interaction and reciprocal pressures of educational supply and demand. Education is made both available and accessible.

Emphasis on these three strategies is not intended to disparage other interventions reviewed. Sufficient school places and free education are the sine qua non of girls' educational participation. But truly nondiscriminatory policies most likely require reinforcement with preferential quotas and affirmative action for girls in order to equalize educational opportunities. The scope of the interventions and strategies reviewed demonstrates that there is no lack of creativity when it comes to girls' education. *Why then has so little been accomplished in improving the educational participation of girls?*

B. Barriers to Implementation

Perhaps the most significant finding of this review is that, despite the rhetoric surrounding girls' education, very little has been done by governments to increase female educational participation. By looking at what has been done for girls, we conduct a litmus test of commitment to producing educated girls and women. National policies, deemed nondiscriminatory by educators, in actuality discriminate against girls. Some policies, such as pregnancy policies or access to vocational education, are less benign in intent; they deliberately discriminate against girls. Patterns of investment also favor boys, whether it be insistence on coeducation despite cultural resistance or reduced resources allocated to girls' schools. Rigid definitions of correct school structure and organization, incongruent with girls' lives, places them outside the formal education system. Reluctance to invest in alternative or nontraditional approaches also hurts girls.

Proclamations of national intent to improve female education are seldom accompanied by action-oriented policy statements and the programs necessary to make them a reality. Even when they are, the lack of political and financial commitment undermine their effectiveness. India--one of the most creative countries in terms of educational interventions for girls--has had little positive impact on educational outcomes because the innovative program have been underfunded and poorly implemented (Stromquist 1989b).

Further, this review found that a notable number of programs for girls were donor-funded and implemented by private sector organizations or NGOs. Most government programs were introduced as pilot projects with some fanfare, and later sank from sight, probably indicating they had never made in into routine operation.

Whether this inattention to girls is a result of ignorance, oversight, or patriarchy,[19] most governments claim budgetary constraints. Although descriptions of interventions were sorely lacking in cost data, it is clear that raising enrollments, persistence, and performance for girls is not solely a question of spending more resources on schools. Reordering of existing resources--to provide for flexible scheduling, more relevant curriculum, more female teachers, etc.--does not require massive expenditure. What it does require is changing the status quo.

Inevitably, discussion of investment in girls' education leads to the question "...but what about the boys?" Incipient objections can be countered on both equity and efficiency grounds. One of the foremost proponents of human capital theory, T.W. Schultz (1971), commented, "If one were to judge from the (research) work that is being done, the conclusion would be that human capital is the unique property of the male population." Educational policies and programs, particularly in the formal system, treat boys (not to mention better-off, urban children) as the client population. Attitudes towards serving the educational needs of girls tend to minimize their importance or treat them as outside the norm. Activities to improve

[19]See Stromquist 1987b for a discussion of the theoretical underpinnings of female education.

girls' education have also been conducted at the margin, without considering fundamental shifts in policy orientation, school organization, and budgetary allocation actually required to effect change. Investing in girls is not to take an essentially equitable system and unbalance it in favor of girls. Girls have not been treated equally in education. Thus, it will take an unequal amount of resource expenditure to achieve gender parity.

"Would that it were possible to convince governments that women ought to be educated because it is their right to be educated, just as it is a man's right or because education will make women's lives better," declares Kelly (1987), recognizing that efficiency arguments must be marshalled to justify investment in female education. Over the past decade, several studies have shown that the economic and nonmarket returns to female education and literacy are high, and, on average, exceed returns to male education (Psacharopoulos 1985; Schulz 1989a). A shift in resources to girls' education will not slow economic growth (Schulz 1989a).

Certainly, national policies are not the only impediment to increasing girls' educational participation. Societal, cultural, and religious attitudes both depress demand for education and may limit educational programs' effectiveness and utility. But the state can be the key change agent and state policy favoring girls must set the development agenda. Without explicit government policies and interventions, societal attitudes and cultural practices are unlikely to change (Haddad et al. 1990).

C. Recommendations for Future Action

What can be done to encourage changes in policy and investment to promote girls' education? On the policy and program levels we have seen the various types of interventions and their results. In the above section, we recommended three promising strategies for consideration. *But what can donors do to see that these interventions and others are studied and implemented in a meaningful way?*

Foremost is that policy should reflect hat girls are not just another special interest group that requires mention in a social impact analysis annex at the end of a program or project design document. Rather, girls represent half of the clientele that educational policies are supposedly designed to address, and their education is key to overall development gains. Donor program support efforts, aimed at bringing about fundamental policy changes in the education sector, can be crafted to make female education a major program focus and key conditionality. But both guidelines and general blueprints for governmental action must accompany policy mandates to ensure that programs for girls do become part of the national agenda.

Realization of the limits to educational growth by both donors and developing country governments has led to restructuring and resulted in several innovations to expand education and improve quality. The same spirit of innovation should be applied to the education system in view of the constraints placed on girls' educational participation by both supply and demand factors. Rather than treat efforts to improve girls' education as additive donor-funded

projects or interventions embroidering the edges of mainstream educational efforts, changes should address those fundamental aspects of existing educational systems that exclude girls. Interventions that have been summarily dismissed as economically infeasible or politically unpalatable should be re-examined. For example, are single-sex schools really a nonviable option?

Nontraditional and innovative approaches deserve consideration: either successful aspects of these programs can be appropriated and adapted to the formal system or, with the recognition that limits of formal education have been reached in bringing girls' to school, nontraditional programs could be extended and replicated. The successful Escuela Nueva program demonstrates that major educational innovations which benefit girls can be economically feasible and incorporated into the formal school system with relatively low unit cost increases.[20] However, the failure of others' attempts to implement variations of the Escuela Nueva model (e.g., in Peru, Paraguay, Argentina and Chile) demonstrates that the process of replication and expansion is not without problems. The Colombian Escuela Nueva's success in going to scale is based on achieving solid social consensus on the program's value and continued adaptation to the local context to maintain teacher, parental and community support (Schiefelbein 1991).

Nearly all the nontraditional approaches examined by this review were implemented by NGOs. Reports of successful programs frequently concluded with a statement that the government or major donor was considering replication on a national level. Donors should recognize that NGO involvement may be one of the reasons for the positive results. Sensitive program design is achieved because a local NGO developed and managed the project in an area where it was well established. By expanding the project, some of the key elements may be lost.

Further, the relative simplicity of administration and lower cost per pupil may be sacrificed if the program is placed in government hands. Compared with the locally recruited teachers of many NGO programs (e.g., BRAC), government teachers command higher pay scales, demand tenure, and can disrupt operations with strikes. An obvious solution is to keep the management of such nontraditional programs in the hands of NGOs, but expand with government funding and under government supervision to ensure quality control and comparability. Both Bangladesh and Guatemala have attempted to establish coordinating boards of NGOs to systematize nontraditional approaches. These, unfortunately, have not been particularly successful. Groups have resented government intervention. Turf battles have discouraged cooperation (Comings, pers. com. 1991). Crafting a more successful mechanism of liaison and collaboration will be an important step in extending nontraditional basic education to out-of-school girls.

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[20]Discounting the initial development costs of the Escuela Model, current operations costs are comparable to costs in formal public schools in Colombia (Schiefelbein 1991).

The process of selecting strategies and designing interventions is important. Too often, this review has found that significant investment has been made on the basis of slim empirical evidence. Programs to recruit female teachers and to revise sexist textbooks are intuitively appealing, but the linkages to increased educational participation for girls are unproven. Later program evaluations do not focus on summative aspects, which would show the effect of female teachers' presence in the classroom.

Rather than investing in options that have proven effective elsewhere or seem promising, care should be taken to follow a logical process of development. Goals should be set, target groups identified, barriers to their educational participation examined and prioritized, interventions selected on the basis of potential impact and affordability, design conducted to include key stakeholders, and evaluation devised to assess multiple outcomes and address key economic considerations. Anderson (1988) observes that, rather than limiting inquiry to barriers that keep girls from school, parents of hard-to-reach girls should be asked "what would convince them to enroll their children." The point is that patterns of demand differ among groups, and that similar reactions to the same intervention are not assured. Nor does the identification of a constraint or barrier that reduces girls' educational participation necessarily translate into a program or incentive that will improve their access, persistence, and achievement.

Assessment criteria for evaluating interventions and strategies to improve girls' education deserve a hard look. First, this review found that evaluations of even donor-funded projects were notably absent. The few that do exist are incomplete and are unlikely to withstand rigorous scrutiny of a public generally disinclined to invest in girls' education. Even the exceptionally well-documented and conscientiously evaluated scholarship program in Bangladesh (FESP) neglected to provide a cost-benefit analysis to show the rate of return--to its detriment as some objections to the program focussed on its relatively high cost. Second, conventional evaluation criteria, particularly achievement scores, may not capture all the effects of interventions on girls. Attitudes, aspirations, and self-image, we have seen, are important educational outcomes for girls. Rules-of-thumb for what constitutes acceptable cost-benefit or cost-effectiveness ratios should be reconsidered. Efforts aimed at hard-to-reach populations like unenrolled girls are certainly more costly than interventions for mainstream children.

Our general impression is that interventions have languished too long in the pilot project or experimental stage; nevertheless the paucity of evaluative results calls for additional research. Although we can state that educational interventions to date have been inadequate, we cannot adequately assess the effectiveness of the many interventions reviewed. Some appear to have been one-time efforts, as in the case of labor-saving technologies. Many have not been evaluated. Others have not disaggregated the evaluation data by gender, as in the case of multigrade classrooms or programmed learning. In particular, research on school quality should consider the gender dimension. First, in crafting the quality improvement, the average student profile should be defined for girls, not only for boys, in order to address the needs of this disadvantaged group. Secondly, given the multiple effects of quality improvements on

girls' educational participation, assessment of the impact of the quality improvement should include measures of access and attainment as well as the conventional measure of achievement. Thirdly, correlation or relation between interventions and dependent variables should be explained, rather than leaving the dynamics of interaction to nontheoretical speculation.

Over the past decade, we have progressed from recognizing the unequal patterns of educational participation to understanding the barriers limiting educational opportunities for girls and realizing the tremendous loss to society their exclusion entails. We are now at the point of asking how to remedy this. Systematic inquiry and political will together will determine the success of our efforts to improve educational participation of girls.

APPENDIX A

The Formal System:

Outcome Summary of Major Interventions in Girls' Education

OBJECTIVE → / INTERVENTION ↓	EXPANDED ACCESS (Enrollment)	ATTAINMENT (Persistence)	ACHIEVEMENT (Performance /Attitude/ Aspiration)	Results	Source
Supply Factors: (Policy Level)					
1. Universal Primary Education	Tunisia Egypt Afghanistan Nepal Pakistan Senegal Guinea Mali			diminishing effect diminishing effect increased disparity increased disparity increased disparity increased disparity decreased enrollments decreased enrollments	Kelly & Elliot, 1982 Robinson, et al., 1987 Lockheed & Verspoor, 1990 Ibid Ibid Kinsey et al, 1990 AID, 1990d Bellew and King, 1991
2. Compulsory Education	Egypt Mali Afghanistan Guinea Sri Lanka Turkey Indonesia			negative effect negative effect negative effect positive effect positive effect positive effects positive effects	Cuadra et al., 1988 Ibid UNESCO Reg. Office, 1984 Long, 1990 Cuadra et al., 1988; Green, 1965 Cuadra et al., 1988 Ibid
3. Early Withdrawal		Nigeria Papua New Guinea		no data no data	Eubi-Ajay, 1990 APEID/UNESCO, 1985a
4. Open Admissions		Kenya Botswana		discriminatory discriminatory	Nkinyangi, 1982 Duncan, 1989
5. Relaxed Criteria		Nigeria Malawi Bangladesh Guinea		no data no data no data backlash effect	Eubi-Ajay, 1990 Lewis et al., 1990 World Bank, 1990 Long, 1990
6. Quotas		Malawi Papua New Guinea Bangladesh		positive effect no data no data	Lewis et al., 1990 APEID/UNESCO, 1985a Anderson, 1988
7. Pregnancy Policies		Botswana Malawi Egypt Tanzania Senegal		negative effect negative effect negative effect negative effect negative effect	Duncan, 1989 Lewis et al., 1990 Ranney, 1991 Ibid Kinsey et al., 1990
8. Sex Education		China Cuba		no data no data	Szromquist, nd Ibid
9. (Lack of) Investment in Primary Education	Egypt Kenya			negative effect negative effect	Sullivan, 1987 Smock, 1981
10. National Incentive Program	India Pakistan			no data no data	APEID/UNESCO, 1985a Lockheed & Verspoor, 1990

OBJECTIVE → / INTERVENTION ↓	EXPANDED ACCESS (Enrollment)	ATTAINMENT (Persistence)	ACHIEVEMENT (Performance/Attitude/ Aspiration)	Results	Source
Supply Factors: (Program Level)					
11. School Mapping/ Proximity	Egypt Philippines Indonesia Bangladesh India Ethiopia Nepal Bhutan			positive effect positive effect positive effect no effect no effect no effect little effect positive effect	Robinson et al., 1986 King & Lillard, 1987 Scott in Tilak, 1989 Khan, 1989 Ibid Abraha et al., 1991 Jamison & Lockheed, 1987 APEID/UNESCO, 1985a
12. Satellite Schools	Bhutan Bangladesh Malaysia	 Malaysia		positive effect positive effect negative effects positive effect	USAID, 1990c APEID/UNESCO, 1985b DeTray in Tilak, 1989 Wang, 1983
13. Boarding School	 Yemen Kenya	China Malaysia Turkey Bhutan		no data no data positive effect no data no effect no effect	APEID/UNESCO, 1985a Ibid El-Sanabary, 1989 Bellew & King, 1991 Cuadra et al., 1988 USAID 1984 Nkinyangi, 1982
14. Multishift/Multigrade Larger Class Size	 Mali Colombia	Ethiopia Colombia	Ethiopia Colombia	positive effect no effect negative effect positive effect positive effect positive effect	Abraha et al., 1991 Ibid Bellew & King, 1991 Schiefelbein, 1991 Ibid Ibid
15. Programmed Learning		Colombia	 Colombia Liberia	positive effect positive effect positive effect, increased disparity	Ibid, Lockheed & Verspoor, 1990 Ibid Boothroyd & Chapman, 1987
16. Interactive Radio			Nicaragua	positive effect, no disparity	Friend, 1991
17. Flexible Scheduling	Colombia	 Colombia		positive effect positive effect	Coclough & Lewin, nd Ibid
18. Religious Schools *a. Presence* *b. Primary School Curriculum*	 Mali Malaysia Mali Bangladesh Kenya Mauritania Gambia Pakistan		 Pakistan	 positive effect positive effect no data no data no data no data no data positive effect negative effect	 Bellew & King, 1991 Don in Tilak, 1989 Bellew & King, 1991 Ibid Ibid Ibid Ibid Anderson, 1989 Warmack, Reimers, & McGunn, 1989

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OBJECTIVE → / INTERVENTION ↓	EXPANDED ACCESS (Enrollment)	ATTAINMENT (Persistence)	ACHIEVEMENT (Performance/ Attitude/ Aspiration)	Results	Source
Supply Factors: (Program Level)					
19. Appropriate Facilities					
a. Lack of...	Bangladesh			negative effect	Khan, 1989
	Pakistan			no effect	Anderson, 1989
b. Provision of...	Bangladesh			positive effect	Bellew & King, 1991
	Pakistan			positive effect	Ibid
20. Single-sex Schools					
a. Lack of...	Bangladesh			negative effect	Khan, 1989
	India			negative effect	Stromquist, 1989
	Yemen			negative effect	USAID, 1984b
b. Provision of...			Thailand	positive effect	Jimenez & Lockheed, 1988
			Nigeria	positive effect	Lee & Lockheed, 1987
			Nigeria	positive effect	Lockheed & Komenan, 1988
			Swaziland	positive effect	Ibid
			Jamaica	positive effect	Hamilton, 1986
			Malawi	positive effect	Lewis et al., 1990
				no disparity	
			Saudi Arabia	positive effect	El-Sanabary, 1989
			Kuwait	positive effect	Ibid
			Kenya	positive effect	Bist in Hyde, 1989
			Peru	negative effects	Stromquist, nd
			Swaziland	sex channelling	in Hyde, 1989
			Yemen	sex channelling	Stromquist, nd
21. Female teachers					
a. Presence of...	Yemen			positive effect	USAID, 1984b
	Philippines			positive effect	Tilak, 1989
	Nepal			positive effect	Shrestha et al., 1983
		Ethiopia		no effect	Abraha et al, 1991
b. Better Teachers			Pakistan	positive effect	Rugh, Malik, & Farooq, 1991
			Pakistan	negative effect	Jalal & McGinn, 1991
			India, Indonesia	positive effect	Avalos & Haddad, 1981
			Uganda, Kenya	no effect	Ibid
			3 LDCs	negative effect	in Stromquist, 1989
c. Role Models...			Nigeria	positive effect	Biramiah, 1987b
			Papua N. Guinea	less effect	Yeoman, 1985
			Botswana	positive effect	Fuller & Snyder, 1985
			Guatemala	positive effect	Saillios-Rothschild, 1979
			Togo	negative effect	Biramiah, 1987b
d. Increased Numbers...					
• voluntary service	Yemen			positive effect	Cuadra et al., 1988
• local recruitment and training	Yemen			positive effect	Ibid
	Pakistan			positive effect	Bellew & King, 1991
	Nepal			mixed effect	Silliman, 1987; UNDP, 1982
	India			positive effect	Chamie, 1983
	Tanzania			positive effect	UNESCO, 1986
• pre-service training	Pakistan			no data	Miller, 1990
	Nepal			no data	Cuadra, et al., 1988; Silliman, 1987; UNDP, 1982
• supplementary training	Nepal			no data	UNDP, 1982
	India			no data	APEID, 1985
• residence	Pakistan			negative results	Warwick, Reimers, & McGinn, 1989

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OBJECTIVE → / INTERVENTION ↓	EXPANDED ACCESS (Enrollment)	ATTAINMENT (Persistence)	ACHIEVEMENT (Performance/ Attitude/ Aspiration)	Results	Source
Supply Factors: (Program Level)					
• *home school*	Pakistan			mixed results	APEID/UNESCO, 1995a
• *positive discrimination*	Bangladesh			no effect	Stromquist, 1989
	Bangladesh			no effect	World Bank, 1990a
	Nepal			no effect	Silliman, 1987; UNDP, 1982
	India			no data	APEID, 1995
	Papua New Guinea			no data	APEID, 1995
• *improved facilities*	Bangladesh			no data	Ibid
• *distance training*	Nepal			no neg. effects	Holmes, 1991
• *special allowances*	India			no data	Khan, 1999
• *assistant teachers*	Tanzania			positive effect	Chamie, 1983
• *block placement*	Papua New Guinea			no data	APEID, 1995
22. Stereotype Elimination					
a. Teacher awareness			Nigeria	no data	Eubi-Ajay, 1990
			Guatemala	no data	USAID/Guatemala, 1990
			Bangladesh	no data	World Bank, 1990a
b. Role Models			Middle East	no data	El-Sanabary, 1989
c. Textbook Revision			China	no data	in Stromquist, 1989a
d. Guides for Educators			India	no effect	Kalia, 1990
			Asia, Middle East	no data	UNESCO, 1984
23. Curricular Relevancy					
a. Mathematics & Science					
• science clinics			Ghana	positive effect	Andam, 1990
• scholarships		Nigeria		no data	Eubi-Ajay, 1990
• indigenous technology			Sierra Leone	positive effects	Amara, 1987
• all-girl labs		Botswana	Botswana	positive effects	DuPlessis, 1991
• timetabling				positive effects	Duncan, 1989
b. Practical Skills...					
• ruralization	Senegal			negative effect	Kinsey et al., 1990
	Guinea			negative effect	Long, 1990
• vocational education	Nigeria			no data	Eubi-Ajay, 1990
	Morocco			positive effect	USAID, 1983
24. Effective Schools					
a. Materials...					
• *textbooks*	Peru	Peru	Liberia	positive effects	King & Bellew, 1989
• *furniture*		Peru		positive effect	Boothroyd & Chapman, 1987
				no effect	King & Bellew, 1989
b. School Organization...					
• *quality management*	Guinea			positive effect	Long, 1990
• *more grades, larger*	Peru	Peru		positive effect	King & Bellew, 1989
	Nepal			negative effect	Shrestha, 1983
		Ethiopa		positive effect	Abraha et al., 1991
• *competency-based curricula*	India		Ethiopa	negative effect	Ibid
• *quality curricula*		India		positive effect	Mellborng, Ostanling, & Persson 1983
• *automatic promotion*			Colombia	positive effect	Schiefelbein, 1991
		India		no data	UNESCO Regional Office for Education, 1984

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OBJECTIVE → / INTERVENTION ↓	EXPANDED ACCESS (Enrollment)	ATTAINMENT (Persistence)	ACHIEVEMENT (Performance/ Attitude/ Aspiration)	Results	Source
Demand Factors: (Policy Level)					
1. Free Primary Education	Tunisia			positive effect	Jones in Kelley & Elliot, 1982
	Indonesia			positive effect	Cuadra et al., 1988
	Sri Lanka			positive effect	Cuadra et al., 1988
	Ghana			positive effect	Snock, 1981
	Zimbabwe			positive effect	Snock, 1981
	Malawi			positive effect	Lewis et al., 1990
	Kenya			positive effect	Kimani, 1990
a. Hidden Costs	Guinea			negative effect	Long, 1990
	Kenya			negative effect	Nkinyangi, 1982
b. Tax Breaks	Guinea			positive effect	Long, 1990
		Guinea		negative effect	Ibid
2. User Fees and Privatization	Kenya			negative effect	Nkinyangi, 1982
	Benin			negative effect	Houeto in Stromquist, 1989
	Malawi			negative effect	Lewis et al., 1990
	Egypt			negative effect	Robinson et al., 1986
	Pakistan			no effect	Snock, 1981
Demand Factors: (Program Level)					
3. Incentives & Subsidies					
a. Multiple		India		positive effects	UNESCO Regional Office, 1984
	Malaysia			positive effects	Ibid
b. Scholarships	India			no data	APEID/UNESCO, 1985a
	Nepal			no effect	Miller, 1990
		Nepal		positive effect	APEID/UNESCO, 1985a
	China			no data	Stromquist, 1989b
	Bangladesh			no data	Anderson, 1988
	Bangladesh	Bangladesh	Bangladesh	positive effects	Thein, Kabir & Islam, 1988
	Guatemala	Guatemala		positive results	Knutsen, 1990
			Malawi	no data	Lewis et al., 1990
c. Textbooks	Nepal			no data	Cuadra et al., 1988
	Peru			positive effect	King & Bellew, 1989
d. School Meals			Guatemala	positive effect	Saillice-Rothschild, 1979
		India		no effect	UNESCO Regional Office, 1984
	Peru	Peru		no effect	King & Bellew, 1989
	Dominican Republic			positive effect	Levinger, 1985
	India			positive effect	Ibid
	Haiti			positive effect	Easton & Fass, 1989
	Jamaica	Jamaica	Jamaica	positive effects	Bellew & King, 1991
			Haiti	mixed effects	Levinger, 1986
			India	no effect	Ibid
			Lesotho	no effect	Ibid
e. School Improvement Fund	Bangladesh			no data	World Bank, 1990a

OBJECTIVE → / INTERVENTION ↓	EXPANDED ACCESS (Enrollment)	ATTAINMENT (Persistence)	ACHIEVEMENT (Performance/ Attitude/ Aspiration)	Results	Source
Demand Factors: (Program Level)					
4. *Reducing Opportunity Cost*					
a. *Labor-saving Technology*	Burkina Faso Senegal			no effect positive effect	McSweeney & Freedman, 1980 Kinsey et al., 1980
b. *Flexible Scheduling*	Colombia	Colombia		positive effects	Colclough & Lewin, nd
c. *Preschools, Creches*	China Nepal Colombia			positive effects positive effects positive effects	UNESCO Regional Office, 1984 USAID, 1985 Bellew & King, 1991
5. *Educating Parents & Community*					
a. *Media Campaigns*	Mali Morocco Tanzania China Malawi			no data no data positive effect positive effect no data	Bellew & King, 1991 Ibid UNESCO, 1980b UNESCO Regional Office, 1985 Creative Associates, forthcoming
b. *Conferences*	Guatemala			positive effect	Clay, 1991a
c. *Community Participation*	Pakistan Bangladesh Guatemala Colombia Bangladesh			positive effect positive effect positive effect positive effect positive effect	Anderson, 1989 Thein, Kabir, & Islam, 1988 Knutsen, 1991 Schiefelbein, 1991 Khan, 1989

APPENDIX B

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APPENDIX C

List of Resources and Organizations

Databases

Educational Resources Information Center (ERIC)
Office of Educational Research and Improvement
U.S. Department of Education
1600 Research Boulevard
Rockville, MD 20850
Tel.: 800-USE-ERIC

REDUC
Casilla, Box 13608
Santiago, Chile
Fax: 011-562-718051

Project SHARE
Harvard Institute for International Development
442 Gutman Library
Harvard University
Cambridge, MA 02138

Resource Organizations

African Studies Center
Boston University
270 Bay State Road
Boston, MA 02215
Tel.: (617)353-7306

Agency for International Development
Center for Development Information and Evaluation
Room 105
SA-18
Washington, DC 20523-1801
Tel.: (703)875-4818

Association for Women in Development
2607 N. 24th Street
Arlington, VA
Tel.: (703)231-7615

Bangladesh Rural Advancement Committee (BRAC)
66 Mohakhali
Dhaka 1212, Bangladesh
600106-7/600161-4

Business Research Co., Inc.
P.O. Box 21770
Nairobi, Kenya

Canadian International Development Agency
Place du Centre, 200 Promenade du Portage
Hall, Quebec, Canada KIA OG4
Tel.: (613)953-8168

Center for International Education
Hills House South
University of Massachusetts
Amherst, MA 01003
Tel.: (413)545-0236

Cooperative Union of Canada
400-275 Bank Street
Ottawa, Canada K2P2L6
Tel.: (613)238-6711

Education Development Center, Inc.
55 Chapel Street
Newton, MA 02160
Tel.: (617)969-7100

Educational Testing Service (ETS)
Rosedale Road
Princeton, NJ 08541
Tel.: (609)921-9000

Harvard Institute for International Development
1 Elliot Street
Cambridge, MA 02138
Tel: (617)495-2161

InterAmerican Development Bank
1300 New York Avenue, NW
Washington, DC 20577
Tel.: (202)623-1000

InterAmerican Foundation
1515 Wilson Boulevard
Rosslyn, VA 22209
Tel.: (703)841-3800

International Center for Economic Growth
243 Kearney Street
San Francisco, CA 94108
Tel.: (415)981-5485

International Center for Research on Women
1717 Massachusetts Avenue, NW
Suite 501
Washington, DC 20036
Tel.: (202)797-0007

The International Development Research Center
P.O. Box 8500
Ottawa, Ontario, Canada
Tel: (613)236-6163

International Institute for Educational Planning
7-9 Rue Eugene-Delacroix
5116 Paris, France
Tel.: 1-45-03-77-00

International Labour Office
1828 L St., NW
Suite 801
Washington, DC 20036
Tel.: (202)653-7652

International Women's Tribune Center
777 United Nations Plaza
New York, NY 10017
Tel.: (212)687-8633

Mary Bunting Institute
Radcliffe Research and Study Center
Radcliffe College
34 Concord Avenue
Cambridge, MA 02138
Tel.: (617)495-8212

Office for International Network in Education and Development (INET)
Michigan State University
East Lansing, MI 48824
Tel.: (517)355-5522

Office of Women in International Development
202 Center for International Programs
Michigan State University
East Lansing, MI 48824-1035

Organization of American States (OAS)
Columbus Library
19th Street and Constitution Avenue, NW
Washington, DC 20006
Tel. (202)458-6084/6037

Overseas Education Fund
1815 H Street, NW
Washington, DC 20006
Tel.: (202)466-3430

Plan International USA
155 Plan Way
Warwick, RI 02886-1099

Royal Tropical Institute
63 Mauritskade
1092 AD Amsterdam
The Netherlands

Save the Children Foundation
2803 M Street, NW
Washington, DC 20007
Tel.: (202)342-8096

UNIPUB
4611-F Assembly Drive
Lanham, MD 20706
Tel.: (301)459-7666

United Nations International Children's Emergency Fund (UNICEF)
3 United Nations Plaza
New York, NY 10017
Tel.: (212)326-7000

The World Bank
1818 H Street, NW
Washington, DC 20433
Tel.: (202)473-3439

World Education, Inc.
210 Lincoln Street
Boston, MA 02111
Tel.: (617)482-9485

World Council of Credit Unions, Inc.
P.O. Box 2982
5810 Mineral Point Road
Madison, WI 53701
Tel.: (608)231-7130